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NewTekNIQUES

June/July 1998
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CONTENTS

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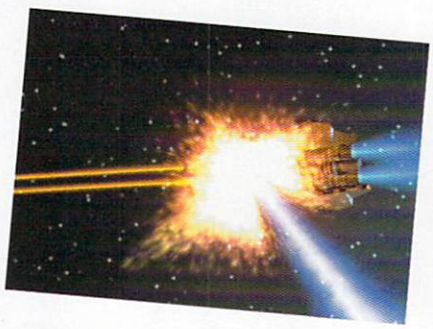

Let the LightWave laser battles begin! Pages 42-48.

FEATURE STORY

page 14

Xena and Hercules:
Rounding Out Flat Earth
by Dick De Jong and Molly Dinkins

Scott Wheeler teaches you how to add rustic woodworking to your hut as part of Project Bird. Page 34.

TUTORIALS

Shedding Light on Lasers 42
by Dave Jerrard

More tutorials online! Go to www.newtekniques.com/bonus

COLUMNS

Plugged In: **Radial Point Selections** 22
by Bob Hood

Waves: **Create Spare Time for You** 28
by John Gross

Flying High: **Amiga Reborn! What Does It Mean?** 30
by Joe Tracy

LightWave 201: **Rustic Woodworking** 34
by Scott Wheeler

Wave F/X: **Storm of the Century** 38
by Greg Nelson

Mojo: **Show Me the Money** 64
by Mojo

ON THE COVER:

This issue's cover was designed by Kevin Kutchaver, one of the three founders of Flat Earth Productions. The evil LightWave 3D Driads are from last Halloween's "Xena: Warrior Princess" episode called "Mortal Beloved." There is a chance that the Driads will soon return.

John Gross unveils one of his secrets to success—make time for yourself! Page 28.

REVIEWS

Lightscape 3.1 40
by Dave Thomas

ImageFX 3.0 41
by John Jackman

See more reviews online, including Aura and the Washburn University LightWave 3D courses! Go to www.newtekniques.com/bonus

TekMasters

SPACE ACE
Ray Cronise's big dreams give new meaning to the word "Flyer."

page 8

DEPARTMENTS

TekTalk 4
NewTekniques has been busy creating more services for you!

Premieres 6
Relativity, Particle Storm 2.0, I-Net, and more!

Renders 49
Four great LightWave 3D images, including two LightWave Mailing List Contest winners.

ShortTakes is now online! Check out the array of news features by going to www.newtekniques.com and selecting "Bonus."

Surf Report is back! Find it in the online bonus area. Go to www.newtekniques.com and select "Bonus" to get there.

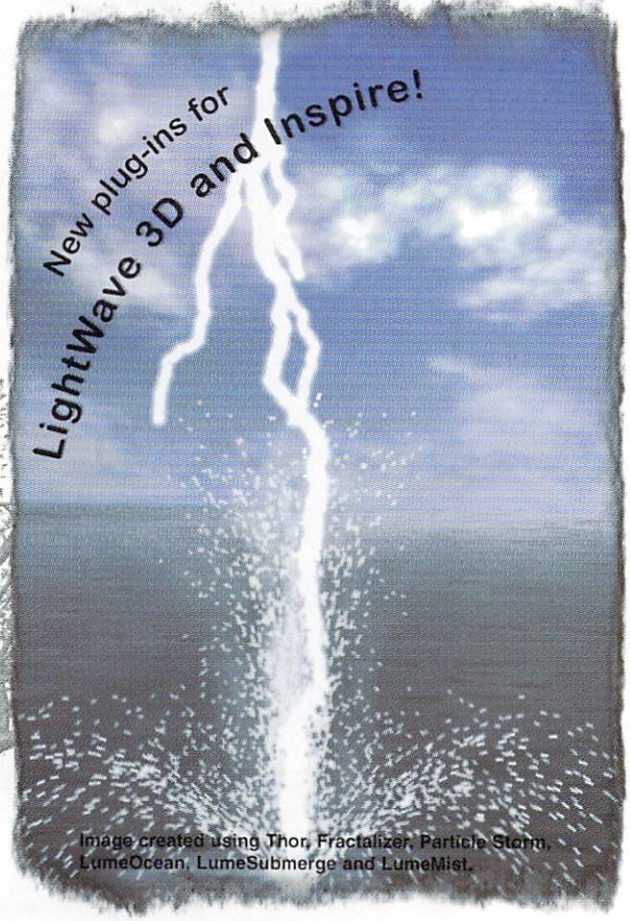

Image created using Thor, Fractalizer, Particle Storm, LumeOcean, LumeSubmerge and LumeMist.

Particle Storm 2.0

The new features in Particle Storm 2.0 promise to bring LightWave animation to the next level of excellence. This totally redesigned plug-in offers Enveloping, Layout integration, and a new hierarchical tree-control interface. Particle Fields allow your particles to flow like water, and creating gaseous and viscous effects is now a breeze! Particle Fields also allow more realistic Flocking and Swarming behavior, as particles can avoid colliding with each other, and inter-particle collisions are now possible for more realistic effects. New Particle Types make particles larger and smaller based on distance, and can turn simple particles into Strands, for realistically moving hair and string effects. The Sticky Particles feature is great for spray painting particles onto objects; Mimic sets a motion path for particles to follow, and the new Assemble and Disassemble features create shapes out of particles or turn polygons into particles for super explosions! The enhanced Collision Detection allows your particles to "see" ahead of themselves and avoid colliding with a LightWave object, and Spawner can make a particle emit more particles based on collision, age, and speed.

Also included are the same great features that made Particle Storm 1.0 so popular: Wind, Gravity, Flocking & Swarming, Force Fields, and enhancements to the Death Wish and Particle Shader add even more possibilities. Req. LW 5.5+. Special Inspire version to be released in July.

LumeTools

Formerly available only as a plug-in for SoftImage, LumeTools is now shipping for LightWave! Create moving water with one polygon, wet surfaces, partially submerged objects with discoloration and diffraction, true layered fog, textured landscapes and stains, glares off of surfaces or from one light, easy edging effects like fuzz and bark, and much more! LumeTools handles sophisticated effects with ease, without adding geometry or render time to your animation. Even create surfaces with the real properties of glass and metal! Req. LW 5.5+ or Inspire 3D.

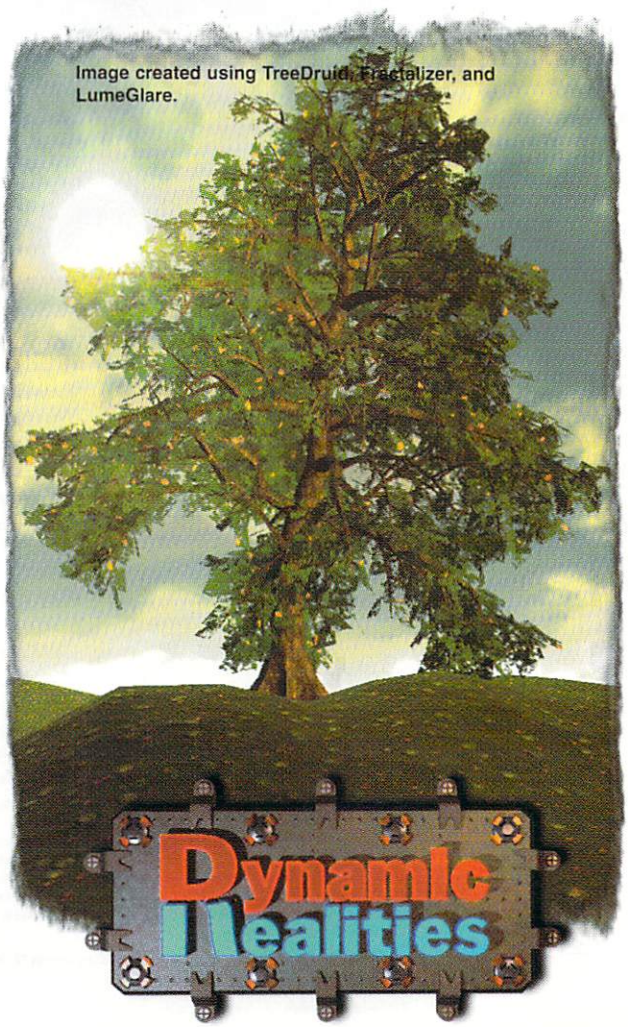

Image created using TreeDruid, Fractalizer, and LumeGlare.

TreeDruid

Create 3D trees quickly and easily right in Layout! TreeDruid is an Object Replacement plug-in that generates realistic trees and bushes. Envelope all the parameters, including height, leaf density, wind, gravity, and sun, for realistic growth and movement. Set your polygon count to maximize your resources. The real-time preview window lets you view the tree 360 degrees around while you make the changes to the parameters. Choose a leaf shape and texture, as well as bark textures, or create your own! TreeDruid even comes with dozens of trees for you to choose from. Req. LW 5.0+ or Inspire 3D.

Thor

Thor is a new plug-in for LightWave and Inspire that generates three-dimensional lightning. The real-time preview window instantly updates as changes are made to the parameters. Envelope EVERY parameter for realistic lightning, Tesla coils, and more! Set a starting and ending point for the bolt to travel between, even on the same object, with hierarched points in-between for easy movement. Req. LW 5.0+ or Inspire 3D.

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TekTALK

OUR EDITOR'S OPINIONS ON IMPORTANT NEWTEK ISSUES

BY JOE TRACY

The best investment a magazine can make is in its readers.

NewTekniques Additions
INVESTING IN READERS

What is most important to you when dealing with a company? For me, it is customer service. The way a company treats its customers says a lot about the overall quality of what it offers. With that in mind, the *NewTekniques* team recently decided to further invest in readers with some new free services!

Bonus Content Online

By the time you read this, a reader-only section will be established on the *NewTekniques* Web site that will bring back some past columns (Surf Report, Ask NewTek) along with expanded areas (tutorials, reviews, ShortTakes), and a couple of new surprises. The site will be password protected, but as a reader, you'll be able to easily access it.

The frustration of always having more content than can fit into an issue of *NewTekniques* and our desire to get that information to you is what led to the decision. It's a hefty time and money investment, but goes along with our goal of investing in the reader as a thank you for your loyalty.

You'll be able to find this new bonus area at www.newtekniques.com/bonus.

InfoTek

Also new to the *NewTekniques* Web site is InfoTek. This fast and easy-to-use online system will allow you to quickly retrieve information on NewTek-related products or services. The system is also searchable so that you can quickly search by product name, category, etc. You can find the InfoTek area at www.newtekniques.com/infotek.

Contests

There are some great contests opening up with your chance to win some great prizes! One of the contests is tied in with this issue's "Shedding Light on Lasers" tutorial by Dave Jerrard. For information on the current contests, go to the *NewTekniques* Web site (www.newtekniques.com) and select "Contests" from the menu bar on the left.

Inspire 3D and Aura!

The *NewTekniques* Web site also features free areas that give detailed information on Aura and Inspire 3D. To get to these sections, go to the *NewTekniques* Web site (www.newtekniques.com) and select "Features" from the top menu bar.

Customer Service

I see my job as *NewTekniques* Editor-in-Chief as servicing you. That is one of the reasons that I periodically print my direct phone number should you have any questions, issues, or comments you'd like me to address. You can reach me directly at (714) 513-8683. You can also email me at jtracy@advanstar.com.

If you ever have any subscription problems, you can call the *NewTekniques* customer service department at (800) 346-0085 ext. #477 or (218) 723-9477 outside of the U.S. You can also email the subscription department at fulfill@superfil.com.

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Thank You!

Thank you for your continued support of *NewTekniques*. We look forward to providing you with many more years of service!

Joe Tracy

NewTekniques

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LIGHTWAVE PRODUCTS

Scene File Management Utility (SMU)

SMU, by Daniel Wilhelm, is a scene file management utility for LightWave 3D that allows you to copy or zip a complete scene with all used objects, images, Particle Storm, Puppet Master, and Morph Gizmo files. You also can copy or load files from a network directory with UNC names.

SMU, which runs on Windows 95, also includes copy functions, an image viewer, a surface explorer, a light explorer, and a sequence manager.

The cost for SMU is $49. The version in release is 1.1. You can obtain more information by going to the *NewTekniques* InfoTek service at www.newtekniques.com/infotek.

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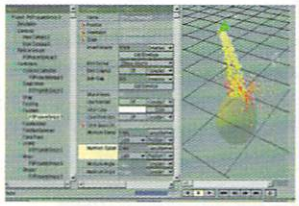
Particle Storm 2.0



Particle Storm 2.0 by Dynamic Realities offers new and enhanced features, including enveloping, Layout integration, and a new hierarchical tree-control interface. Particle Fields allow particles to flow like water, and enable more realistic flocking and swarming behavior, as particles can avoid colliding with each other. Inter-particle collisions are also possible. Particle Types make particles larger and smaller based on distance and can turn simple particles into strands for realistically moving hair. Sticky Particles, lets you spray paint particles onto objects. Mimic sets a motion path for particles, and the new Assemble and Disassemble features create shapes out of particles or turn polygons into particles for super explosions.

Particle Storm 2.0 is available for Intel, Alpha, Macintosh, Sun, and SGI platforms. For more information, visit the *NewTekniques* InfoTek service at www.newtekniques.com/infotek.

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AMIGA

I-NET 225

I-Net 225 is a professional, SANA-II compliant, TCP/IP networking software package for the Amiga. TCP/IP is an internationally accepted network protocol, which exists on virtually all computer platforms. This gives different systems a common means by which to exchange data. Finally, the Amiga can communicate with everyone else (i.e. Mac, PC, SGI, Windows 3.1/95/NT, Sun, etc.).

I-Net 225 comes with a full host of clients and servers allowing the Amiga to connect with remote hosts, and also host other systems on the network. The new easy-to-use GUI Installation utility Quick_Prefs makes installation a breeze.

I-Net 225 costs $149.95. For more information, visit the *NewTekniques* InfoTek service at www.newtekniques.com/infotek.

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Relativity

Relativity, by Prem Subrahmanyam, relates the motion channels of any item in LightWave 3D (camera, bones, objects, lights) to those of any other item at any point in time, using powerful mathematical formulas. It also allows you to contract and extend time by relating it to an object's position.

From complex targeting and snaking, to cycling relationships between objects, Relativity brings complex mathematical equations to life in LightWave. For those who are not experts in math, Relativity provides "Professors" that help guide you through the process.

Called "the revolutionary expressions plug-in for LightWave 3D," Relativity retails at about $200 and is available for Intel and Alpha platforms (with PowerMac available by July). For more information, visit the *NewTekniques* InfoTek service at www.newtekniques.com/infotek.

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NEW LIGHTWAVE PRODUCTS

Scene File Management Utility
Particle Storm 2.0
Relativity
TutorVision 3D CD
Motion Designer

NEW AMIGA PRODUCTS

I-NET 225

TutorVision 3D CD

TutorVision 3D CD Volume 2 is a two-CD set that teaches you character animation with LightWave 3D version 5.x. It includes more than six hours of video tutorials in 800 x 600 resolution that play back on the same computer monitor LightWave is running on.

The CD also contains over six full-length text tutorials that cover more advanced topics, six product reviews, and an interview with Stephen Bailey from Will Vinton Studios. There's also a Product Showcase, Animators Showcase, and Objects & Textures section.

TutorVision 3D CD Volume 2 runs on Pentium, PowerMac, and DEC Alpha systems and costs $49.95. For more information, visit the *NewTekniques* InfoTek service at www.newtekniques.com/infotek.

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Motion Designer

Motion Designer, distributed by DStorm of Japan, is a deformation LightWave 3D plug-in that allows animations to be created using physical simulations. Animation data is created by specifying parameters such as weight, spring, resistance, and viscosity for each surface of an object and by simulating wind, gravity, and collision.

Key motions created in LightWave 3D and motions by IK-BONE can be used as object motions during simulation. Motion Designer is highly effective for creating realistic animations of soft objects, such as cloth.

Motion Designer is available for Intel and Alpha for $495. For more information, visit the *NewTekniques* InfoTek service at www.newtekniques.com/infotek.

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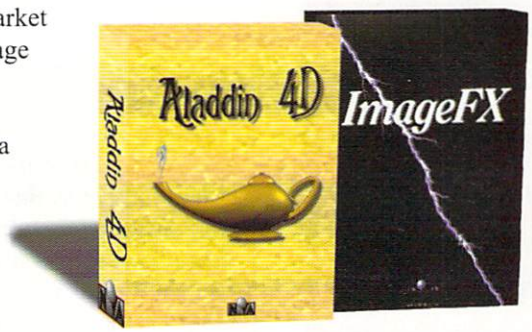

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TekMasters

MEET THE INNOVATORS OF THE INDUSTRY—PAST, PRESENT, AND FUTURE

Top: Jason Linhart of NewTek, Ray Cronise, and Laurent Sibille of NASA float in NASA's KC-135.

Bottom: NASA's KC-135 provides up to 30 seconds of weightlessness per maneuver with 40 to 60 manuevers per flight.

Ray Cronise
SPACE ACE

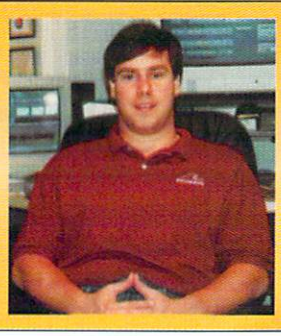
NewTekniques: Most people know you only as a third-party Flyer product developer, yet your life is much more, including work you do for NASA.

Cronise: Space development is my passion and there has been no better place to be working than as a research scientist at NASA during the last 14 years. My current activity is research on Aerogel. This is a lightweight, transparent solid that is over 97 percent air. Because of the open pore structure of Aerogel, it is a great insulator providing up to R30 value per inch of material. Our team was awarded a major NASA research grant last year to study the effect of microgravity, or weightlessness, on the processing of Aerogel. We are also working on advanced carbon Aerogel for both cryogenic and high temperature application for the Reusable Launch vehicle efforts like the X-33 and X-34. It's funny, because this entire effort was started after Tim Jenison (NewTek's CEO) had asked me whether I could make Aerogel structures to be used in lightweight model airplanes for time-aloft contests. The more I thought about it, the more it became obvious that this was a perfect material for space research and applications.

NewTekniques: A few years ago there was an article in *Video Toaster User* about the Video Toaster Flyer system being used on NASA's "Vomit Comet" to test it in weightlessness. What can you tell us about it?

EDITOR'S NOTE:

Ray Cronise is known as a third-party Video Toaster Flyer development guru because of his high-profile company, ProWave. But his passions go well beyond the Flyer and into space where he hopes to one day be a part of the development that will send people to outer space on a regular basis. While his job as a NASA research scientist is a dream come true, it is actually his Flyer-based video productions company, KRC Productions, that brings in the family income. Cronise turned his initial $5,000 investment in the Toaster into a six-figure income with his corporate productions. We appreciate Cronise breaking away from his busy schedule as a NASA research scientist, owner of ProWave, video producer, and father of two, for an interview with *NewTekniques*.



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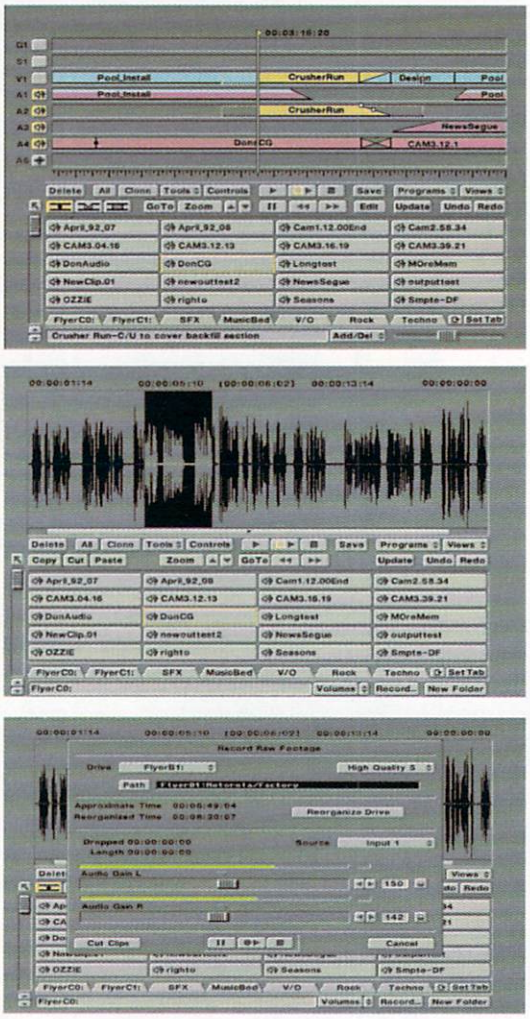

ProWave is developing a drag-and-drop audio timeline for the Flyer called Eclipse (top picture), which interacts with its new audio waveform editing program, WaveEditor (middle and bottom pictures).

Cronise: I was a Toaster user at the time and had gotten some LightWave help from Jason Lindhart, then in NewTek's tech support. We were talking about my NASA "day job" and some of the video challenges that would face us on a space station; launching and storing videotapes are not cheap. For example, on the last space lab mission that I worked, USMP-4, we carried over 100 tapes for a two-week mission and that cuts down on stowage for experiments. Once the data is collected, scientists usually digitize it for analysis, so why not do it all at once and then downlink it later when time permits?

The test we performed was really about hard drives; could they perform in such an environment? During these flights we go from twice Earth's gravity (2 Gs) to 0 G and back every one and a half minutes, and perform as many as 60 maneuvers in one two-hour flight. Though it was a very preliminary version of the Flyer—we had only a command line interface to record and play—the drives didn't miss a beat. It is also interesting to note that VTASC is perfect for scientific applications because it does not introduce the blocky artifacts typically seen in MPEG or M-JPEG. This is important when a few pixels may contain the very information a scientist is looking for in an image.

NewTekniques: Prior to developing for the Flyer what did you do and how were you first introduced to the Video Toaster?

Cronise: I was asked by NASA to be a science host on a TV show called "Today in Space" that aired on the NASA Select channel. After a two-week, one-show-a-day schedule, I thought that video would be a great side hobby, until I saw the cost to get started. One of the editors at the studio suggested that I call the 800 number for the Toaster "Revolution" tape and from that point on, I was hooked. I must have watched that tape for a year before purchasing a used Toaster 2000 system and a couple of Hi-8 decks from Art Polin, an award-winning Flyer wedding videographer. After seeing some of the work he had done at the time, I was sure that this was the system for me.

NewTekniques: With the Flyer expertise that you and ProWave programmers Bill Evans, Rob Wood, and Lee Stanford possess, have any of you ever considered working for NewTek's Flyer development team?

Cronise: Sure. I think most Video Toaster users at some time have thought it would be cool to work for a company like NewTek. We actually bring more to the table by not being there. It allows us to attack the problems from a clean slate without as much influence from corporate politics that are present at any company. What is most exciting is the team of third-party guys like Aussie and Jeff White who can build software applications that all work together. Tim Jenison likes to call this "Coopertition."

NewTekniques: Even though the Flyer is used in conjunction with some prime time network TV shows, there are some who say that it isn't broadcast quality because it is composite-based while most professional tape decks are component-based. Based on your knowledge and experience, how would you answer such critics?

Cronise: Anyone who has seen a composite D2 deck or 1-inch tape knows it is a bit disingenuous to say that you can't achieve quality video using a composite signal. Just hook up a live camera composite feed to a monitor and look at the image. I think most people just equate composite to VHS and don't think about the bigger picture. Unfortunately, since Beta-Cam SP and component were so prevalent in the analog professional market when the Flyer hit the street, people just didn't give composite signals a fair consideration. People just automatically assume that because VHS is a bad editing choice, and it is composite, then any system that uses composite can't have good quality. This is the most fundamental flaw in logic called the "fallacy of confirming the antecedent" (e.g., all dogs have four legs, therefore if

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NewTek

Circle #207

Ray Cronise, serving as assistant mission scientist, and Laurent Sibille in the Huntsville Payload Operations Control Center (POCC) during a recent 14-day microgravity space lab mission for NASA.

it has four legs it must be a dog).

NewTekniques: What is the next big product we can expect from ProWave and what will it do?

Cronise: As you may know, all the programmers at ProWave are "weekend warriors," and as such it's hard to say exactly when we will get something released. These guys all have tight schedules, but still manage to pull off some amazing things. We have been working on WaveEditor for two years. We are trying to follow in the success of ProMix and RenderFX by making our programs run entirely from the Flyer user interface. WaveEditor uses the same "project motif" of the Flyer. When you highlight an audio clip in your project and launch WaveEditor, you get a standard waveform representation of that clip in a project window. Now you can copy, cut, and paste nondestructively. When you hit the "save" button, you get a choice of writing a new clip, with all of the changes you made, or saving a project; the resulting clip or sequence of clips is incorporated back in the location of the original clip. We have also been working on a new drag-and-drop audio timeline editor as the first WaveEditor plug-in called Eclipse. While it is not designed to edit video (the Flyer interface is much better at that), you can edit your audio in a timeline format. Even better, we have allowed all of our ProMix tools to work from this interface, allowing you to preview your edits real-time before executing the changes. We hope that tools like OZware's Co-pilot Audio can be integrated into WaveEditor as well.

NewTekniques: There seems to be a constant fear in the Amiga community that NewTek is going to completely abandon the platform and future development of it. How do you respond to these people?

Cronise: With the aggressive pricing announced recently, I think it makes an update for the Amiga Flyer a guarantee. At this point it seems the real responsibility is with Gateway and other manufacturers to continue, and advance, the Amiga and its OS. NewTek has stated that it will continue to support current Flyer owners, and based on its track record with the Toaster, I'm confident they will do just that. As far as the hardware is concerned, they have only scratched the surface of what the Flyer can do.

The one feature of the Flyer that is often overlooked is that all the compression chips are software-programmable. By only changing the code downloaded to the chips, you can continually improve the video quality. We have seen this already as the standard setting was increased to HQ5 and development is well under way for HQ6. This is unique to the Flyer—with all other NLE boards on the market, you have to buy new hardware each year to keep up with the drives. It seems much more economical to add a software patch and a few faster, and usually cheaper, drives. Even at the Flyer's 5MB per second, that is really only 2:1 compression, because uncompressed D2 is about 10.5MB per second as compared to D1, which is 21MB per second (RGB is 31MB per second uncompressed). So at the same compression ratio of the current HQ5, you would need to use at least 10.5MB per second for similarly compressed D1 component.

NewTekniques: Finally, what words of wisdom or tips do you have for Flyer owners?

Cronise: With the Flyer, I never have to worry about an A/B roll edit. I can change the length of my dissolves in just two hotkeys (thanks to Co-pilot), and I never suffer generation loss—every tape is a master. When my clients have changes, I don't have to cringe at the thought of re-editing the project—just a few crouton drags and it's finished. Thinking back to the cost of the first two 9GB drives at $4,000 each, I remember how great of a deal that was, because the Flyer opened up my video production business to a whole new level of productions; $800 to $2,500 event jobs became $8,000 to $20,000 corporate videos. Now with the new low cost of the Flyer and 9GB drives at $500, I'm just amazed that anyone with a Toaster would even think twice about a Flyer. With all of the hype about interactive CD-ROMs and multimedia presentations, there is still one fact that holds true: If you keep your message short enough, a traditional sales videotape is the only guaranteed means of getting a customer to hear and see everything you want them to. The Video Toaster Flyer system was the first complete video postproduction system in a box and today it is still the most affordable way to do video. NewTek definitely delivered the "desktop revolution" it promised me years ago...in its sales tape. I'm grateful to all who have worked so hard to make this a reality.

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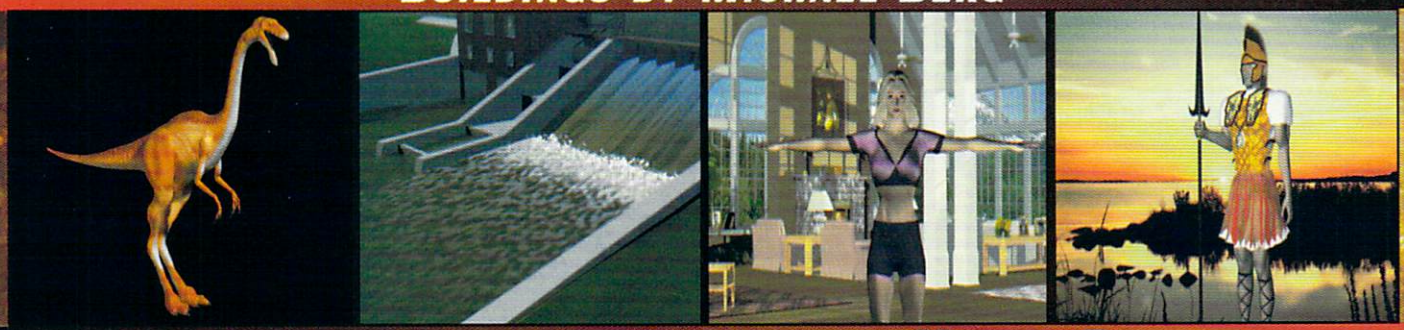

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Flat Earth Productions uses LightWave 3D for all the effects in the highest rated syndicated show on television, "Xena: Warrior Princess."

Top: Xena is about to be grabbed by a large bird in "Prometheus."

Bottom: This famous opening credit scene is finally being made into an episode!

ROUNDING OUT

BY DICK DE JONG AND MOLLY DINKINS

Twenty-something animators were hooked by video games. *Star Wars* inevitably inspired the 30-something generation. As for the 40-something founding fathers of Flat Earth Productions, they sharpened their FX teeth on George Lucas' space epics. Doug Beswick sculpted the heads of the Cantina Band in *Star Wars* and he actually performed in the band. Kevin Kutchaver animated light sabers in *Return of the Jedi*. Meanwhile, Kevin O'Neill worked on *Ewoks: The Battle for Endor*.

FLAT EARTH

Hercules battles Hera's fiery monster, Pyro, in "The Fire Down Below."

"All three of us came from the old school, before this cutting-edge digital technology," Kutchaver said. "We've been around since the dawn of time, doing this since the earth was flat." Is it any wonder that Ray Harryhausen was their Yoda?

Like the seven-headed Hydra in *Jason and the Argonauts*, the spirit of Ray Harryhausen rises up again and again at Flat Earth. Harryhausen, one of the masters of stop-motion effects, created many memorable scenes in movies like *The Golden Voyage of Sinbad* and *The Valley of Gwangi*. Take a look at the jaw-dropping sequence of Jason sword fighting with seven skeletons in *Jason and the Argonauts*, and you'll recognize the lineage of Flat Earth's visual effects work in "Hercules: The Legendary Journeys" and "Xena: Warrior Princess."

Indeed, in the second season of "Hercules," the Flat Earth trio, with the help of Everett Burrell, created their own skeleton fight scene. Instead of employing painstaking and time-consuming stop-motion techniques, Flat Earth constructed and rendered the scene in LightWave 3D. In fact, Flat Earth has employed LightWave for all its 3D work since opening in 1995.

Flat Earth Down Under

O'Neill, Beswick, and Kutchaver had crossed paths working for various visual effects houses in the 80s and 90s. "Hercules" was the project that brought them together and forged Flat Earth. "Hercules" was originally a series of television movies produced for Universal Studio's Action Pack of rotating TV programs.

In 1993, O'Neill was serving as visual effects supervisor for the Sam Raimi and Rob Tapert production of the first Hercules movie. "They filmed it in New Zealand and I went down to supervise the effects shots," O'Neill said. "Before I went, I called Doug and we hired Joe Conti and Don Waller to do the 3D stuff.

"Universal was hoping one of the shows in the Action Pack would be a hit. To everybody's surprise, Herc was the one. Kevin Sorbo just thought it would be a great vacation," O'Neill said.

MCA TV ordered additional episodes and the initial season was launched.

"After the first movie, Kevin Kutchaver decided to come over from 'Babylon 5' and join us. He did all the 2D comp work on his Mac computers at home using After Effects," O'Neill said.

Actually, Kutchaver wasn't the only one toiling at home. The group was organized back then as a true virtual studio with no physical headquarters—everyone was working out of spare rooms or

garages. The arrangement allowed the team to remain efficient and cost-effective. It was a practical solution made by veteran effects artists who had witnessed the vagaries of the business.

During the premiere season of "Hercules," O'Neill, Beswick, and Kutchaver decided to form Flat Earth. One of their first purchases was a DEC Alpha machine for rendering. "We always bought what we could afford," said Kutchaver, explaining Flat Earth's lean financial creed. "That was my father's philosophy."

In the beginning, we averaged about 30 shots per episode of Hercules," O'Neill said. "In the second season, we averaged 45 to 50 shots per show—with some episodes calling for up to 90."

During the last two episodes of the initial official season of "Hercules," a character was introduced that would double Flat Earth's workload and spawn a frenzy of Xenites. When Xena, the Warrior Princess and Gabrielle, the Amazon Queen, were spun off into a series of their own, Flat Earth had to acquire its first render farm and expand to 12 animators.

Even with the extra workload, Flat Earth remained a virtual studio. It actually extended the network by teaming with animators in Pennsylvania (John Ortman "decided to get married and not come to California," O'Neill said), Chicago, and Northern California. But considering that both "Hercules" and "Xena" are shot in New Zealand, 8,300 miles from Los Angeles. Pennsylvania seems like a Chakram's throw away.

Flat Earth created a talking dragon for an episode of "Hercules."

For the first few seasons, O'Neill flew down to New Zealand every six to eight weeks to oversee the shooting of the visual effects scenes. Now both productions are in a "mature period," O'Neill said. "There's no new ground to break." So for next season, Renaissance Pictures will hire a coordinator to be on the set to make sure all the technical aspects of the effects shots are covered.

The shot count per episode is now up to an average of between 60 to 75 for both "Xena" and "Hercules." On special occasions, the count can easily top 100. For example, on "Bitter Suite," a Xena episode with singing animals, Flat Earth used LightWave to lip sync the mouths of the animatronic lion, eagle, and bull. The virtual solution saved the day. Renaissance's original request was to use live animals. Just removing the drool is an animator's idea of a digital nightmare.

Not all the work is glamorous 3D effects shots. Indeed, every time Hercules slugs a scoundrel into orbit or Xena whoops out a battle cry and somersaults into the fray, the wires attached to the airborne miscreant or heroine have to be removed.

"We like to give people responsibility," Kutchaver said. "We say, 'Here is your shot.' People do better when they can say, 'This is mine.' I've worked at ILM. We're trying to keep out of that situation where PAs are constantly looking over your shoulder."

Except for the puppet work done by Weta, a New Zealand visual effects facility, Flat Earth handles all the "Hercules" and "Xena" effects. At the end of the season, that can be a big load. Recently, Flat Earth was preparing two programs for May sweeps. Each one had about 150 shots. Because the production in New Zealand was behind schedule, the artists at Flat Earth only had a week to complete both episodes. "We have a gentleman's agreement with Rob Tapert and Renaissance Pictures to do the best that we can within the time available. And we always like to give a little extra," O'Neill said.

"We prefer the beginning of the season," Kutchaver said, "because we have more time to work on the shots."

Other Worlds

As Flat Earth became recognized for its work on "Hercules" and "Xena," it started to be hired for other projects. "We did a lot of 3D work on the film *Mortal Kombat: Annihilation,*" O'Neill said. "We created the lower set of arms for Motaro, the four-armed woman. We also did an 80-shot sequence of compositing various cloud plates."

About the same time, Flat Earth was working on the short-lived ABC TV series, "Timecop."

Ray's Boys

When Kevin O'Neill, Doug Beswick, and Kevin Kutchaver, the founders of Flat Earth Productions, were asked what inspired them as children; the response, in three-part harmony, was Ray Harryhausen.

Reviewing the trio's childhoods is like reading about triplets separated at birth. All of them spent their teenage years trying to emulate the effects they saw in Harryhausen movies like *First Men in the Moon*. Beswick actually created his own version of the *7th Voyage of Sinbad*. Kutchaver teamed with boyhood friend Pete Kuran on such mini-classics like *Shine*, a story about giant bread mold. O'Neill's epic *Death on the Tracks* took him almost a year to complete. He shared the garage with his dad. They rigged a pulley system; by day, O'Neill worked on his set and by night, they hoisted the set over the family car.

Kevin O'Neill, Ray Harryhausen, Kevin Kutchaver, and Doug Beswick.

By the time Beswick was 17, he was employed by Art Clokey, the creator of "Gumby." Clokey was Beswick's mentor on stop motion and claymation techniques. Both O'Neill and Kutchaver went to college on the East Coast but found their way to Los Angeles soon thereafter.

Kutchaver's pal, Kuran, had started his own visual effects company in Hollywood called Visual Concepts Engineering (VCE). At one time or another, O'Neill and Kutchaver worked at VCE. The partners met for the first time in 1987 when Beswick was doing the effects work on *Beetlejuice*.

When O'Neill was approached by Tapert to produce the visual effects for "Hercules," he thought it was a perfect chance to work with his Harryhausen kindred spirits. "Kevin called me and said I want to hire you for nine episodes," Beswick recounted. "He convinced me to learn computer graphics. Don Waller taught me LightWave basics."

Earlier this year, the three realized a childhood dream when they met Harryhausen.

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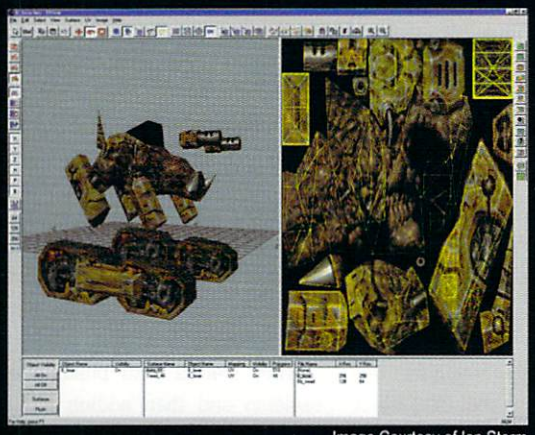

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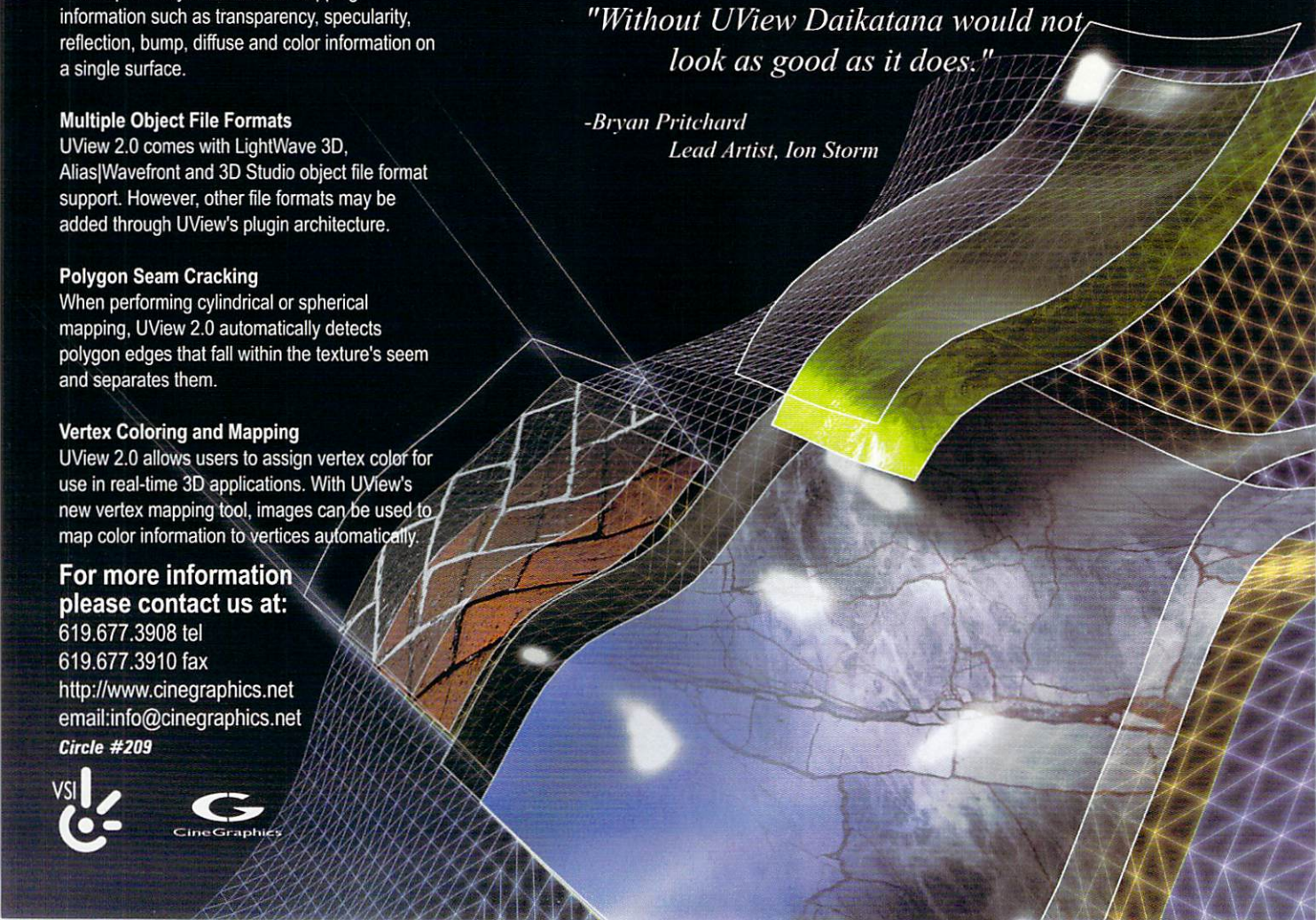

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A LightWave 3D special effects shot from Blade, *a new film based on the comic book vampire killer. It is being released into theaters this September.*

The program never generated the chemistry or the ratings, so the network severed the space-time continuum. The show was axed after five episodes. "That's the difference between network and syndicated programs," O'Neill said. "We know with a syndicated program that there's a stronger commitment to producing a season's worth of shows. Because of that, we like working on syndicated series like 'Xena' and 'Hercules.'"

With the extra workload, Flat Earth increased its staff to about 30 artists and finally, last year, decided to rent studio space in Burbank. O'Neill had maintained a trailer on the nearby Universal Studios lot since the beginning of "Hercules," but, "We wanted a place to meet off the lot to discuss other projects," Burrell said.

Ironically, when it came time to create the Hercules and Xena attraction at the Universal Studios theme park, Flat Earth was not even asked to bid on it. "We got a call from Digital Muse, who had been contacted to do it. That was the first we had heard about it," O'Neill said. "When we finally asked Universal, they said they thought we were too busy doing their TV shows."

Child Rearing in the Digital Age

Imagine living in a home where Barney is banned, Daddy has a five-foot dragon head, and Halloween is a major holiday. Lucky Jennifer, 5, and Allison, 15 months, live this dream. Their parents are villain creator, Kathy Zielinski, and monster maker, Kevin Kutchaver.

"Our house looks like a funhouse," said Zielinski, supervising animator at Disney and DreamWorks who specializes in rogues and knaves.

Jennifer, whose favorite film is *Gremlins 2* (Daddy worked on it), fights with her father over action figures. "I have to remind her that her Woody from *Toy Story* is the one with the head that she chewed," Kutchaver said. Jennifer loves Akidna, the Mother of all Monsters from "Hercules," and Graegus, Ares' war dog. "She suffocates them with Crazy Foam in the bathtub," Kutchaver said.

When Jennifer first went to preschool, Mom would decorate her lunch bag with hand-drawn Disney figures. Jennifer just thinks her mother knows how to draw. She still doesn't understand that Mom actually creates these characters.

And how does a 5-year-old cope with watching a dinosaur consume a lawyer in Jurassic Park? "Did he just get eaten?" asked Jennifer. Zielinski explains that it's not real and that someone made it up like Daddy does, and she sends her off to watch Dad at the computer. Kutchaver takes a more philosophical position. "Most of the time I tell her that some people just aren't careful."

Do they worry about the violence the kids see at home on TV programs, the movies, and video games? "No. If I want violence out of my house, I turn off the evening news. But I do draw the line," said Kutchaver. "I was watching 'Tales from the Crypt – Demon Night' when Jennifer came in. The shrieks from my TV were more intriguing than the screams from her cartoons. I just grabbed the remote."

He added, "I grew up watching horror movies. They were no worse than 'Grimm's Fairy Tales' and look at me." Enough said.

So Jennifer and Allison are learning to love Gremlins, creepy crawlies, and beheaded dragons; and parents Kathy and Kevin think its perfectly normal.

Living on Earth

In October, 1997, Flat Earth had just completed a real 3D project, with the glasses, for a company in Japan that sets up haunted houses in shopping malls. Flat Earth had created virtual monsters that would jump out of the third dimension and scare the living daylights out of you.

Since that time, the studio space at Flat Earth has almost doubled, though some things remain the same. Beyond the requisite action figures and models that inhabit the desks and shelves, there are no architectural embellishments. The walls are covered with storyboards, movie posters, and a sign that reads "Effects 25¢." Even as they grow, the company has maintained Spartan surroundings. "We are a bunch of tables and guys who can do stuff," Kutchaver said.

The one corner that belies that image belongs to Paul Herndon; an old-fashioned graphics artist who still uses a pen and ink. The walls are papered with his energetic drawings of nether and otherworldly beings.

Blade – Making the Cut

Right now, Flat Earth is a hotbed of activity as artists are buzzing from one office to another discussing their current project, *Blade*. This New Line Cinema film is based on the comic book vampire killer and stars Wesley Snipes as Blade.

In a pyrotechnic opening sequence, the steel-hearted Blade is eviscerating a room full of vampires. As these bloodsuckers cross the river Styx, they burn to ashes. Flat Earth's job was to realistically create this lethal internal inferno, layer by crispy layer, in a span of about 30 flaming frames per digital death.

They started with building a skeleton and then adding muscles, skin, and clothing. The LightWave 3D model was animated to match the movements of the real person in the scene. The next step was to resolve the critical metaphysical question: How does a vampire burn? The answer, it seems, is that an incendiary incision by Blade's blade ignites a smoldering fire that radiates from the wound, incinerating the clothes and immolating the body.

Once all the burning layers are rendered, the final shot is composited from an overlapping series of searing strata. For example, in one scene, Snipes sends Traci Lords on a one-way trip to kingdom come. To achieve the broiling effect, Kutchaver started with a background plate of the live action scene, a green screen shot of Lords' stand-in writhing from the death blow, and the 3D model (with the background plate front projection-mapped to it) matchmoved to the stand-in. As the cremation progresses frame by frame, a skin pass is added; after that, skin embers and ashes. The bones are revealed, then bone bits, bone embers, and more

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Another LightWave 3D effects shot from New Line Cinema's Blade.

ashes. A glow pass is mixed in along with three elements of ash clouds. And for good measure in this shot, the vampire's skull bounces off the floor before it vaporizes.

"*Blade* is a great job for an artist with arrested adolescence," Kutchaver said. "We get to blow people up."

The movie took its toll, though. "In film, they always massage the shot to death," Burrell said. "On TV, you don't have the time to keep changing the shot. They use everything—there's no waste."

"With film, everyone who is part of the project has their say," Burrell said. At first, *Blade's* director, Stephen Norrington, was critiquing every frame of the shots. "Since his background is in effects work, he was very knowledgeable about what could be done." Burrell said. Flat Earth thought Norrington was satisfied with how the work was progressing when Kutchaver got a call from him saying "that after the screening, they would have copious notes."

"A shot is never finished until a week before the movie's opening date," Kutchaver added. "That's how long it takes to make the prints to send to the theaters. We cringe if we see that the opening date is moved back."

One Earth — Three Roots

"People here want to make movies," Beswick stated when talking about the trio's origins and future.

"We've ended our training in post production technology," O'Neill added.

"We're anxious to get a camera and tell a story," Kutchaver said. "We want to make the kind of films we used to enjoy watching."

Flat Earth has lined up a three-picture deal to produce some low-budget films that are visual effects-heavy. In fact, they created two trailers for the Cannes Film Festival this year. If they can generate enough international interest, Kutchaver might be directing his first film by the time you read this.

"We know what we can bring to a film—cost-effective visual effects," O'Neill said. "It's the bang that will get people into the theaters."

Dick De Jong and Molly Dinkins are freelance writers from Austin, TX.

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Plugged In

LIGHTWAVE ADVANCEMENTS THROUGH PLUG-IN SCRIPT WRITING

Scripting for Modeler

RADIAL POINT SELECTIONS

Digging deeper into LScript to create a Modeler LScript that allows you to select points radially.

BY BOB HOOD

This month we'll dig a bit deeper into the use of the LightWave 3D LScript system for creating LightWave Modeler plug-ins. Last issue, I left you with a few lines of script code that performed an action that was very difficult and time-consuming to accomplish using only the Modeler interface. This month, we will construct a new Modeler LScript that not only will allow us to examine more LScript constructs and features, but also will provide functionality that would be extremely difficult—if not impossible—to accomplish manually.

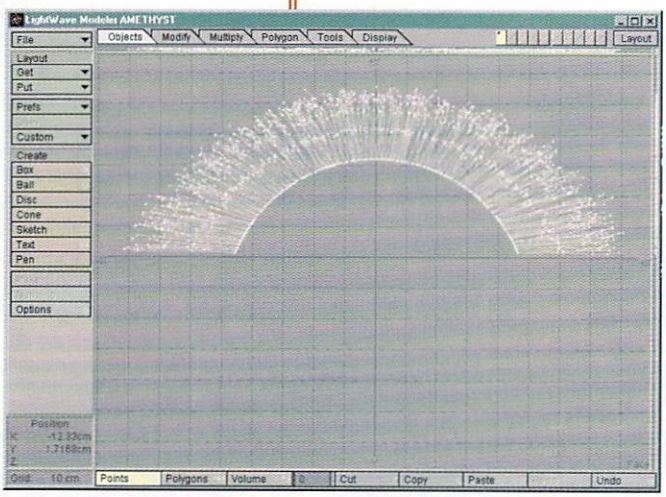

Figure 1: The mesh data used to demonstrate radial selection.

Radial, Dude!

Several methods of selecting object points are provided by Modeler. However, there may be times when you have a special need, and our script this month addresses such a need. We will construct a script that allows us to select points radially. The script will use two imaginary spheres—one contained within another, with both sharing the same center point—and will select points that lie within the space that exists between the "skin" of both spheres.

Figure 1 shows the mesh data, a series of two-point polygons, I will use to demonstrate the functionality of the radial selection process. These polygons have been adjusted deliberately to lie mostly within the X-Y plane so the effect of the selection can be seen more plainly.

Figure 2 illustrates the inner and outer radii for the selection area. The inner radius represents the smaller of our two selection spheres, while the outer radius encompasses the larger. When executed, our script will select all points that lie within this boundary defined by the difference of the two spheres.

Geometry 101

Roughly 2,500 years ago, a mathematician from Samos was the first to provide a mathematical proof to a theorem that had been in use for more than 1,000 years before him. This mathematician, named Pythagoras, formally proved the now-famous distance calculation formula commonly known as the Pythagorean Theorem. I haven't the space to embark upon a detailed examination of the theory, nor is one nec-

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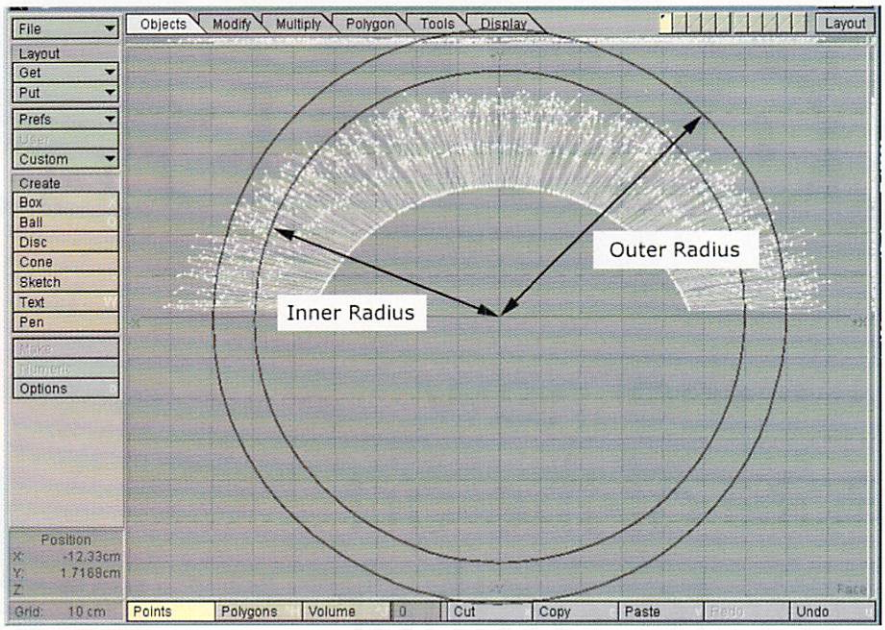


Figure 2: The radii of the inner and outer "imaginary" selection spheres

essary to our purposes. Given two points in 3D space, it is enough to know that the distance between them can be determined using this mathematical theorem. So handy is this mathematical function that LScript includes it within its vmag() function (short for vector magnitude). We will be relying heavily upon this function for this issue's scripting exercise.

On With the Code

Listing 1 is the Radial Select LScript. We begin the script by counting the number of points visible in Modeler's active foreground layer. This takes place in line 3 using LScript's pointcount() function. To ensure that the script user is not trying to outsmart us, we check, on line 4, to make sure that there are indeed points with which we can work. If none was found, we simply return without a whimper. However, a more robust script probably would chide the user for napping when he should be working.

In lines 5 and 6 of Listing 1, we establish the inner and outer radii to be used in our selection process. We place these values into variables, called inner and outer. You might wonder why we don't just use the literal values directly in the script wherever we need them. Well, placing them into a variable keeps us from having to change the value in more than one place in the script should we decide that one or both of the radii are not quite what we wanted. (This can be accomplished more efficiently with "preprocessor macros," but that is a topic for discussion at a later date.) More importantly, it provides us with a means of altering the values as the script executes. The usefulness of this practice will become clearer when we add a requester interface to the script (in the next installment of this column).

Now that we have established parameters within which to function, we switch Modeler into its mesh-editing mode by calling LScript's editbegin() function (line 9). Recall from the last column that we are required to invoke this mode before we can access and/or edit any existing mesh data—for instance, converting points into polygons. While we will not actually change any existing mesh data in our Radial Select script, we must be in this mesh-editing mode in order to access information about the mesh data contained in the active foreground layer. Note also that editbegin() returns the number of points found in the currently active foreground layer; we ignore this return value in favor of the identical sum we saved from our call to pointcount() (line 3).

Repetitious Learning

Lines 11 through 19 of Listing 1 wrap some of our processing code inside of an iterative control, commonly known as a "for loop." Along side decision controls (such as "if" and "select"), loops are among the workhorses of any programming language.

The for loop on line 11 sports three sections. Each section is separated from the others by a semicolon (;). The first section is executed once, at the beginning of the looping process. Notice that we place code into this section that initializes variables we will use in our loop:

```
for(x = 1,y = 0;...
```

Multiple initializations can be performed, each separated by a comma (,). The x variable is used to count the number of times we have gone through the loop. The y variable will be used as an index into an array we will construct within the loop.

Section two of the for loop is the expression that LScript will evaluate at the beginning of each complete pass through the loop code.

```
...;x <= count;...
```

While this expression evaluates to a logical "true," the loop will continue to execute. In our expression, we ensure that the loop executes once per point (i.e., while x is less than, or equal to, count).

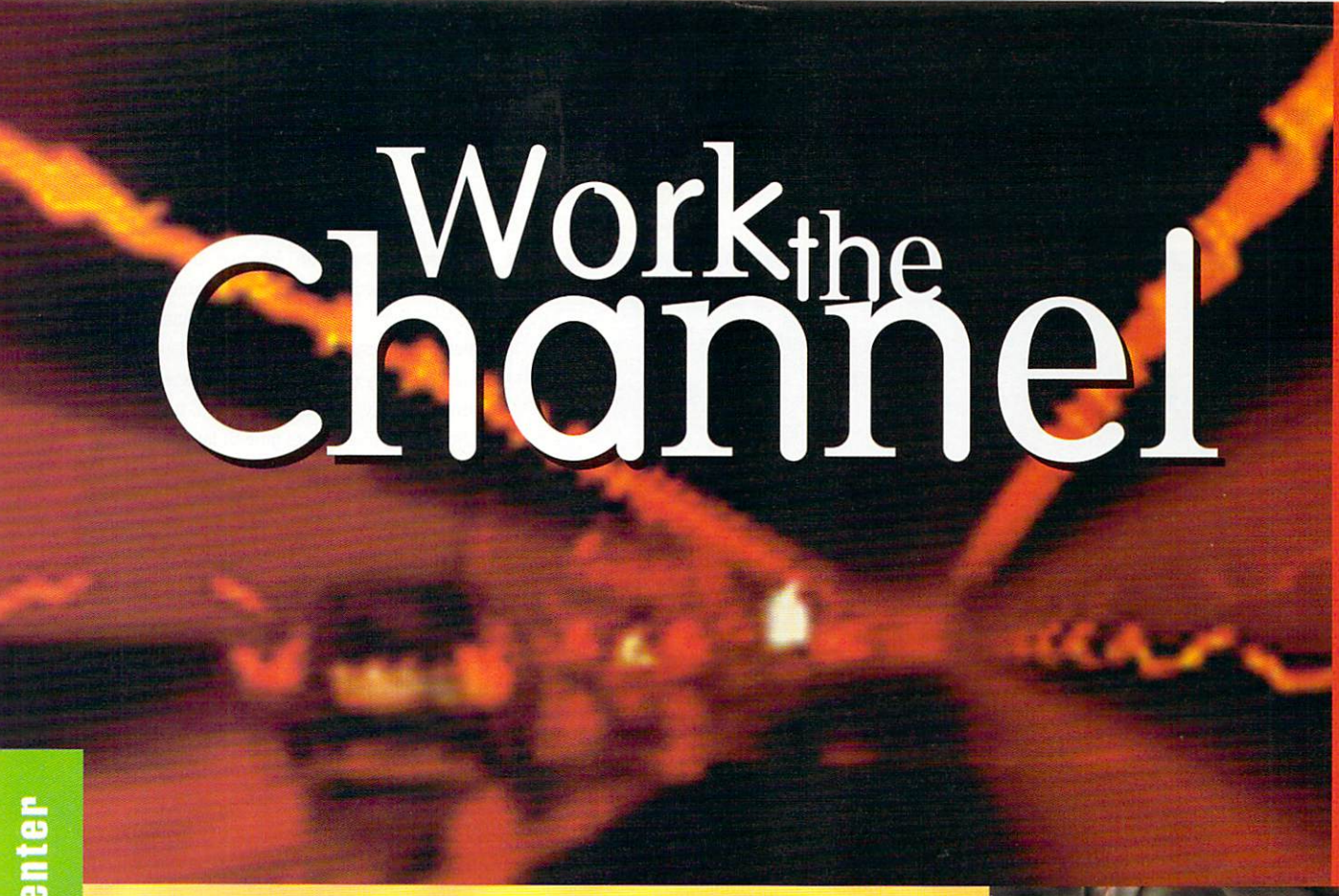
The last section of the for loop is code to be executed at the end of each pass through the loop. In our case, we use the post-increment operator to add one to the x loop counter.

```
...;x++)
```

If we neglect to perform this final operation, then our loop will go on and on without end, like a bunny banging a drum. This condition is known as an infinite loop, and should one occur in your script, your only recourse would be to forcibly terminate Modeler. Not a good situation, especially if you forget to save your work.

Magic Time

Inside our for loop, we examine each point. Line 13 uses LScript's pointinfo() to get the



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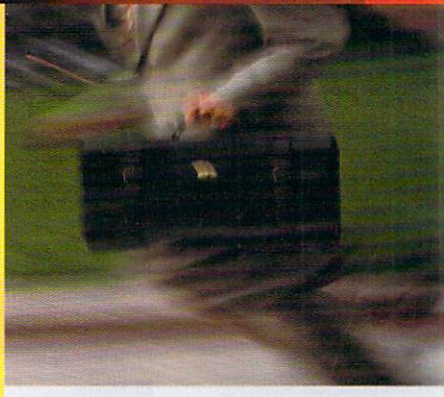

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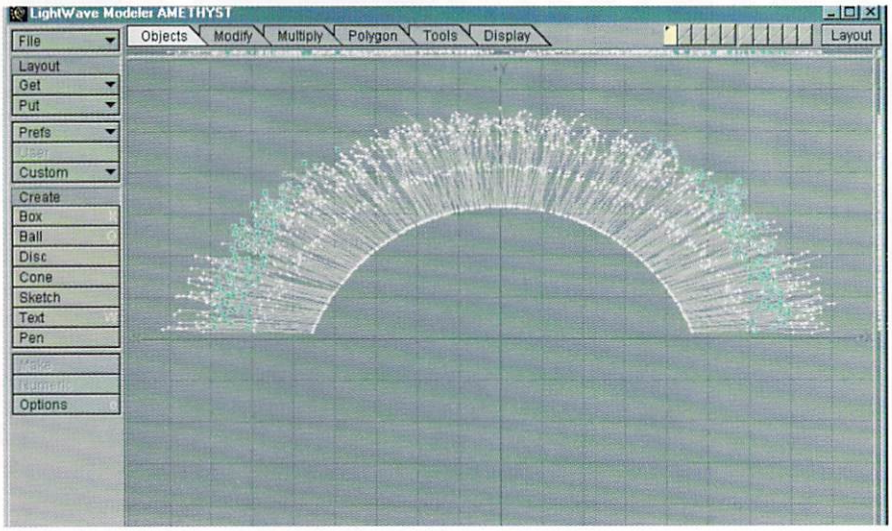

Figure 3: Point selection performed by the "RadSel.ls" LScript

```
01: main                          16:
02: {                             17: if(dist >= inner &&
03: count = pointcount();         dist <= outer)
04: if(count == 0) return;        18: pnts[++y] =
05:                               points[x];
06: inner = .7;                   19: }
07: outer = 1.5;                  20:
08:                               21: editend();
09: editbegin();                  22:
10:                               23: if(!y) return;
11: for(x = 1,y = 0;x <=          24:
count;x++)                        25: selmode (USER);
12: {                             26:
13: pnt =                         27: selpoint (CLEAR);
pointInfo(points[x]);             28: selpoint
14:                               (SET,POINTID,pnts);
15: dist = vmag(pnt);             29: }
```

Listing 1: The "RadSel.ls" Modeler LScript

location in 3D space of the point identifier found in the points[] array. Once we have that...hey...wait just a minute! Where did that come from?! We didn't declare an array named points anywhere!

No, the script isn't buggy (and Bob isn't growing senile). When we switched into mesh-editing mode, LScript did some convenience work for us as part of the setup for the editing session. It created two new arrays, points[] and polygons[], that contain the point and polygon identifiers (respectively) for all the visible mesh data in the current foreground layer. You will need to provide the data contained in these arrays to many function calls during mesh editing. These arrays only exist during the mesh editing session.

Once we have the location of the current point, we have all the information we need to determine if this point falls within our selection range. It is on line 15 that we employ the Pythagorean Theorem (embodied in the vmag() function) to determine the distance to the current point from the origin point <0,0,0> (in the next installment, we'll add the ability to specify an arbitrary center point for the radius of the selection). With the distance calculated, it is a simple matter to test this point's candidacy for selection by comparing the distance to the radii we have established. This test is performed on line 17.

The Mesh Editor's Club

While we are in a mesh-edit mode, Modeler imposes restrictions upon what functions we can and cannot invoke. During mesh editing, those function calls designated as Command Sequence (CS) in the LScript documentation cannot be used. In particular, any selection-oriented function calls are excluded during our mesh-editing operations. So, how do we select points as we detect them in the range of the selection?

We do so by remembering those points that need to be selected. Once we finish with our mesh-edit session, we can then pass this point information to a Command Sequence-based function for selection. We use an array called pnts[] to remember the pertinent points. Because LScript allows us to create arrays and add array elements on the fly, we can simply deposit points into the array as we find them. Because it is an array of only one dimension (a linear array), LScript will manage its growth for us.

Making It Happen

Once the loop finishes processing all points, we terminate our mesh edit mode by calling editend(). This call not only ends our ability to directly modify mesh data, but our automatic arrays (points[] and polygons[]) no longer exist. We also make sure that there is a reason to go on by checking to see if any elements exist in the pnts[] array (line 23). A simple test of the y variable will yield this information. If y holds a value greater than zero (i.e., it is not false), then points have been found to lie within our range. However, if none was selected, we simply return, which terminates the script.

On line 25, we tell Modeler that further selections will be in USER mode. We do this with the LScript selmode() function. It is a requirement of the following selection commands that this mode be active for any successful selections to take place.

Lines 27 and 28 complete our script, and accomplish the selection of the points that we have determined match our criteria. The first call to selpoint() on line 27 CLEARs any existing selection of points. The subsequent call to selpoint() on line 28 passes to that function the array we created of accumulated point identifiers. We instruct Modeler to SET these points, and we tell selpoint() that we are providing POINTIDs as the basis of our selection. Figure 3 illustrates the results of executing our Radial Select LScript.

Up Next

That's all the space I have for this issue's installment. Next time, we will enhance our Radial Select LScript by allowing for an arbitrary center point of our selection radii, and we will also add a requester panel so that users of the script can alter the operating parameters to suit their needs.

Bob Hood is in charge of LightWave 3D's plug-in SDK development.

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INNOVATIVE LIGHTWAVE 3D APPLICATIONS FROM OUR LIGHTWAVE MUSE

WAVES

How to get creatively involved in your own work and dreams even while holding down another full-time job.

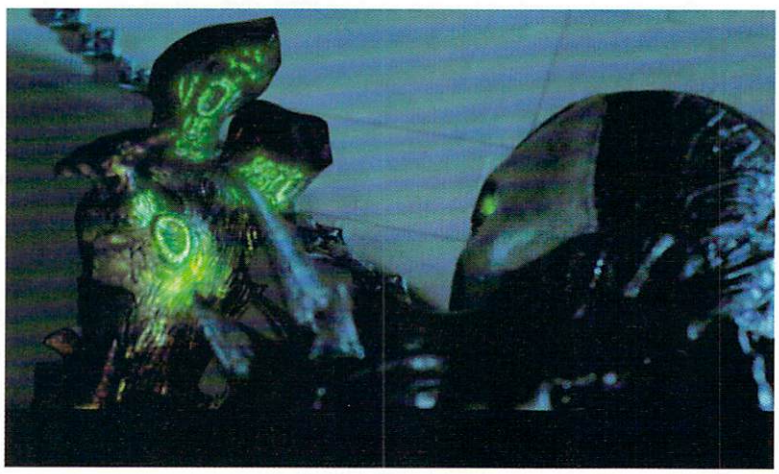
An open letter to CG artists
CREATE SPARE TIME FOR YOU

BY JOHN GROSS

What do you get out of being a CG artist? The reason I ask is to help determine what your mindset is. Do you want to create cool stuff that you can show your friends and family? Perhaps you get paid for creating 3D logos and effects for clients out of your house. Maybe you want to work for a Hollywood facility and create effects for the entertainment industry? In any of these cases, you are an artist in some way, shape, or form. It doesn't matter which piece of software you create with, you just create.

From my experience, it seems that the majority of CG artists got into it for the first time because it was a chance to create cool stuff to look at. That's certainly what made me fall in love with LightWave 3D. Once you commit to creating effects for a "business" you need to make some decisions. You can learn to use your tools and create things on your own, or you can work with others and (hopefully) allow your combined experience to help you become a better artist.

A special effects shot, courtesy of Digital Muse, from the movie Spawn.



There's a Catch-22 involved with being an artist. Somehow you have to support yourself. If you're not lucky enough to have a patron, you need to work at something to provide for your needs. Hopefully you can work in an environment where you can practice your art, but here's the catch: you may spend all day creating art for somebody else, leaving no time or energy to create for yourself. The thing you love to do may well become the thing you have to do. But if you can reconcile the two successfully, you can be happy.

The best CG artists in their chosen field can pretty much pick and choose which projects and/or facilities they wish to work at. They can generally get work anywhere, as their skills

John Gross and his Digital Muse team did the special effects work for the CBS mini-series "Titanic" that aired in November 1996

are in high demand. The facility with the latest "cool" project will draw people. It can be true that, "If you build it they will come," but what about creating your own projects? What about working on something that really allows you to express yourself? If you are fortunate, you may get to work at a facility where you can collaborate with other people who share your creative vision. It usually is not a specific project that does it, but rather a "gathering" of ideas and concepts and an absorption of techniques that allow you to expand your skills. A good facility enables artists of all calibers to come together into a cohesive ensemble just as a good acting ensemble allows actors of varying skills to form a solid team. If you choose to work in a facility with other artists, I hope that you'll get a chance to work with them in a manner that will help you grow creatively.

So, what happens with our Catch-22? When was the last time that you, the CG artist, created a work of art? When did you last use your skills to affect people? Sure, you entertain people (and there is nothing wrong with that), but do you have something that you can show that is an expression of your creativity as opposed to an expression of someone else's (which may not always be creative, at least from your point of view)? You can be creative at any task that is put before you, but chances are pretty high that you are being asked to change what you do in order to please someone else.

Does this bother you? It shouldn't. It's just what you need to do in order to continue to work at something you (hopefully) love. Your client is allowing you to continue honing your skills and perfecting your art, therefore you should look at every job as a fresh challenge to help make you a better artist. It's true that you have to deal with deadlines and you may not get the chance to make the scene that you're working on everything you would like it to be, but don't let that discourage you. Artists use the tools at hand to create. Your client's ideas, time restrictions, and available resources all add to your toolset.

What I'm doing here is reminding you of the reason you got into this field in the first place. Allow a project that you are working on to inspire you to create something of your own. Spend some time working on a project that has nothing to do with your work. Get together with friends who share your vision or at least would find it fun to work on a project that you, or someone else, is developing. Perhaps a client will bring you a wonderful opportunity that you can get really excited about. The point is not to become so tied up with creating for others that it impedes your desire to create for yourself.

There are two types of artists I've encountered: true artists and technicians. True artists can work anywhere. They can put up with a lot and still create wonderful stuff. They'll create with any tools available to them. When supplied with tools and environments that help facilitate the process, they can produce a larger or faster quantity, but the quality is always there (given enough time, of course).

Technicians understand the software well. They know what all (or most!) of the buttons do and they know how to apply the tools and techniques at the appropriate times to create the desired effect. They, like artists, can combine different software programs to create effects, but often there is that spark missing from a finished piece. We've all seen it in feature effects many times. Technically, the individual application may be impressive, but the finished whole is not.

Every CG artist I know has both the artist and the technician living inside of him or her. Sometimes the artist part takes precedence and sometimes the technician part is dominant. It changes based upon the project at hand and the artist's excitement about the work. I would love to see everybody get the chance to let their artist part flourish. This happens by being excited about what you are working on, either by the nature of the project itself, or what you, as an artist, put into it. It doesn't matter if it is a client-supplied project, one of your own, or another one that you really believe in.

So, I propose that you take some time to get creatively involved. When you're not working on client projects, seek out other artists you feel comfortable working with and try to develop a project that you can work on in your spare (ha!) time. If you don't have the desire to develop your own, get involved with someone else's. I look at it as a long-term project that is worked on until it is finished. There's no hurry. There's no deadline, so take your time to make it exactly what you want. Every time Michaelangelo was asked when the ceiling of the Sistine Chapel would be completed, he replied, "When it is finished." Finish your chapel when it's done.

John Gross is the co-owner of Digital Muse whose current projects include the feature films Beowulf *and* Breakfast of Champions, *"Star Trek: Deep Space Nine," "Star Trek: Voyager," Lockheed Martin's "The Future" commercial, and feature trailers for* Star Trek 9 *and* Virus. *You can email him at john@dmuse.com.*

FlyingHigh

TIPS, TECHNIQUES, TUTORIALS, AND SHORTCUTS FOR YOUR VIDEO TOASTER FLYER PROJECTS

BY JOE TRACY

Amiga Reborn!
WHAT DOES IT MEAN?

For the first time since acquiring the Amiga technology more than a year ago, Gateway 2000 subsidiary Amiga, Inc. has finally shown an interest in making a future with the platform. At the recent World of Amiga show, Amiga, Inc. unveiled plans for a new OS, a future Amiga super system, and a new "temporary" machine due in November that will bridge the way to the super system. But what does this mean for current Amiga users? Is it too little, too late? And where does this leave Video/Toaster Flyer owners?

The Announcement

On May 15, Amiga, Inc. announced at the World of Amiga show in London that by this November it will release a special "bridge Amiga" system as a precursor to an Amiga super system that will appear in about two years. The bridge system will be a combined Amiga and PC in one box, containing the new Amiga 4 OS. Within two years, an Amiga super system, containing a new custom chip and Amiga OS 5, will be publicly released.

Amiga Timeline

November 1998
- Amiga 4 OS
- Amiga/PC "Bridge" Computer

Early 2000
- Amiga 5 OS
- Amiga Super System

What It Means

The bridge system isn't being designed for everyday users. It is being created with developers in mind so that they can begin developing for the new Amiga super system and have software and hardware ready by the time the new system, referred to as the "Digital Convergence" system, ships in the year 2000. Although the bridge system isn't being created specifically for users, Amiga, Inc. hinted that it may still be available to the public. The bridge system is said to be faster than current PCs and uses x86 processors. The Amiga 4 OS will be widely released.

According to Amiga, Inc., the super system will be optimized to be up to five times better than today's best available systems. The main focus of the new system will be on multimedia technology. In the meantime, the Amiga 4 OS will be backwards-compatible with current Amiga software.

Behind the Scenes

Amiga, Inc. gave Gateway 2000 15 different plans for Amiga's future. It was only two weeks ago that Gateway settled on one, just prior to the World of Amiga event. All the details of the final plan couldn't be worked out by May 15, so more than two-thirds of the planned announcement by Amiga, Inc. were cut!

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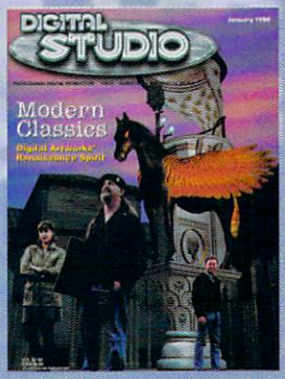
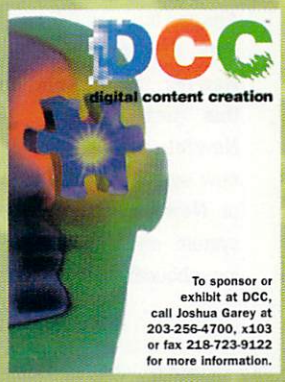


NewTekniques

NewTekniques offers in-depth coverage of NewTek's LightWave 3D and the Video Toaster/Flyer. *NewTekniques*' first priority is how-to educational content to help users improve the quality of their productions. Industry professionals share their insight with product reviews, tutorial features, user profiles, and dedicated coverage of NewTek news and technical developments.

DCC Expo

DCC Expo is the premier event addressing the convergence of digital content creation for both entertainment and business. The DCC Expo, to be held December 2 - 4 at the Los Angeles Convention Center, is the first conference and exhibition bringing together two unique segments: buyers and resellers of digital content technology.



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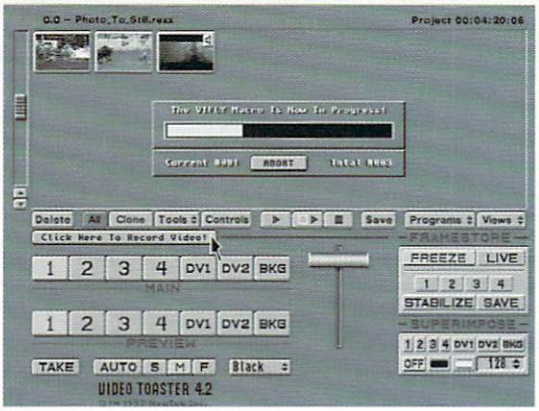

Figure 1

Meaning for Toaster/Flyer Owners

Even though NewTek remains the largest developer for the Amiga platform (Toaster/Flyer), reports indicate that Toaster/Flyer cards may not fit into the bridge system coming out this November! If this is the case, then some sort of "external" connection or box will have to be connected to the bridge system in order to use your Toaster/Flyer.

How much the Toaster/Flyer will benefit from the Amiga super system will be determined by how serious Amiga, Inc. is about working with NewTek. At this point, NewTek has refused to abandon a system that every other big company abandoned years ago.

The Best Scenario

Amiga, Inc. should work closely with the intelligent minds at NewTek in gathering input for this next-generation system. NewTek alone could bring the new system thousands of users, or NewTek could abandon the system and Amiga, Inc. would lose thousands of potential users.

The time for Amiga, Inc. to approach NewTek about an alliance and win-win situation is *now*!

NewTek's Reaction

NewTek has not yet reacted to the announcements made at the World of Amiga show. However, a few weeks prior to the show I visited NewTek where I saw first-hand that it was still working on Amiga projects. I asked NewTek's CEO, Tim Jenison, how he could advance the Flyer to the next level without a new Amiga system. His short response was that it could be done, hinting that the next generation power of the Flyer is already within the Toaster/Flyer card. Do I hear "Flyer 5.0" in the future?

I do not doubt there are some big things coming for Flyer owners. In fact, NewTek's marketing of the Flyer has drastically increased recently!

FMG 2.0 Super Tip

Here's a great tip on ultra-quick digitizing of photos for Flyer 4.2 owners, taken right out of the pages of the *Flyer Mastery Guide – Version 2.0:*

If you have the need to record a lot of photos, an ARexx script called Photo2Still will nearly automate everything and save you tons of time!

Here's how:

1. When you have a picture in DV1 or DV2 that you want to save, go to your ARexx directory to start.
2. Double-click on the "vi" folder.
3. Double-click on the Photo2Still icon. It will ask if you need instructions. Click No.
4. You are asked to select a compression mode. Select High Quality 5.
5. You are asked which Input has incoming video. Most people have their cameras connected directly to Input 1. If this is your setup, click Video Input 1.
6. You are asked if you are using a GPI trigger or mouse. If you have no idea what a GPI trigger is or know you're not using one, click Mouse.
7. Select the Video drive you want to save to and a name (like Photo01). Click Pick.
8. You are asked to enter the number of stills you have to grab. It wants to know how many photos you plan on digitizing (if you were going to digitize 50 photos, you'd enter 50). Enter a number and press Return.
9. A new box, "The VIFLY Macro is Now in Progress" appears along with a button that says "Click Here to Record Video!" See Figure 1. Every time you click on the "Click Here To Record Video!" button, it will grab the photo your camera is pointed at and automatically save it as a Flyer Still! Then it is ready for the next one! The box in the middle of your screen will progress to show you how far along you are with your digitizing session. This automated process can save you hours of time on big photo-digitizing sessions.

Tutorial Online!

A new subscriber-only area has opened up on the *NewTekniques* Web site. You can find the new area at www.newtekniques.com/bonus

I've expanded my "Flying High" column on this new site, where it is called "Flying High Online." There you'll find a brand new Flyer tutorial and additional tips! Furthermore, there's another new Flyer tutorial coming your way in the August/September issue of *NewTekniques*. Enjoy!

Joe Tracy is the author of the Flyer Mastery Guide – Version 2.0. *He can be reached at jtracy@advanstar.com.*

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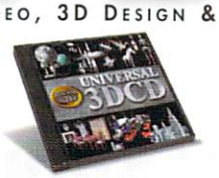

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Motion Plug-In Pack

This five-in-one plug-in package from NewTek helps animators create realistic motion. Plug-ins included: Gravity, Oscillator, Follower, Serpent and Cyclist.

Motion Pack [NT-K2007]	$225
Film Grain [NT-K2008]	$135

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NEW

Polygoneater

Polygon Eater is a polygon reduction plug-in for LightWave 3D that frees 3D model designers from the time-consuming task of manually converting a model into multiple resolutions. It can automatically reduce the number of polygons to the number desired by the user, while maintaining the characteristics and overall shapes of models.

Polygon Eater	[DS-T3001]	$169
D-Storm Motion Designer	[DS-T3002]	$399

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Surfaces and more surfaces! Fractalizer, from Dynamic Realities, is a fractal noise shader plug-in that replaces LightWave's Fractal Noise, adding even more control and versatility over animation, appearance and opacity. Using Fractalizer, you can create fire, explosions and realistic clouds without the huge rendering time.

Dynamic Realities [DN-R2010] $134

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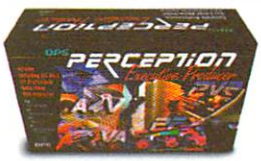

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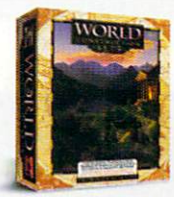

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Circle #216

LightWave 201

A UNIVERSITY-LEVEL COURSE WITH INCREASINGLY DIFFICULT LIGHTWAVE TECHNIQUES

BY SCOTT WHEELER

The fourth installment in the second level of LightWave courses —"LightWave 201."

Project Bird:

RUSTIC WOODWORKING

So, you have finished your homework and are ready to move on with the completed Longhouses, right? If not, I have made the finished model available on my Web site at www.uberfx.com and the NewTekniques Web site, www.newtekniques.com. For those of you who at least attempted the homework, congratulations! For those who just waited to get the finished model, shame on you!

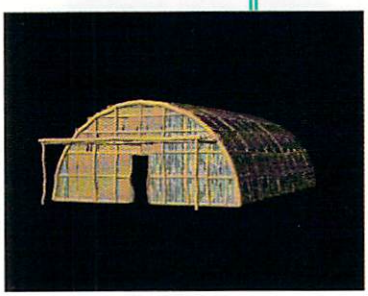


Figure 1

Figure 2

Figure 3

For this session we will be adding texture to our Longhouse in preparation for compositing in a woodland scene.

1. Let's start by loading, into Modeler, the Longhouse from our last article with the homework additions added on to it. We are going to make a lot of texture changes to the model so lets save a few different versions of our model. Save the first version out as "Longhouse_Plain." This will be the base model so if you want to start from scratch later you have it on hand. Save the Model again and call this one "Longhouse_Final." Now we can make all the surface changes we want to keep.

2. Close the objects panel [p] and hit the spacebar to toggle the Mouse mode to Rotate. In the numeric requestor [n] set the heading to 22 and make a key frame at 0 [Enter Enter]. Change the view to Camera [6] and render a frame [F9]. Your frame should look like Figure 1.

3. In Surfaces, click and hold on the Current Surface popup. If all went well you should have three surfaces other than "Default." These surfaces should be named "Log," "LonghouseInterior," and "LonghouseWood." We'll start surfacing our model by highlighting "LonghouseWood" in the Current Surface popup.

   "LonghouseWood" is the surface name of the underlying polygons. This is the simple hut shape that we used to start our model. We are going to texture this part of the model to look like the mortar or clay that was used to insulate the huts. Since we know after building our model that these surfaces are covered mostly with the logs, and that we will only catch glimpses of them underneath, we should not spend a lot of hard work surfacing. The impression of detail will be all that's needed.

4. With "LonghouseWood" selected, click on the Surface Color button to bring up the color requestor. This will allow us to set the base color for our surface. This means that all other surface color changes we make will be blended back to this main color. In the popup enter the following RGB values—R: 75, G: 90, B: 99.

   By default, LightWave 3D uses the Windows color requestor, If you would rather use the old-style color requestor, simply hold down the Shift key when clicking on Surface Color. With our

base color taken care of, let's add a little color variation.

5. On the right side of the Surface Color line is a button labeled T; this is the Texture Button for surface color. It allows you to add either an image file or a procedural texture to your surface.

In this case we are going to add some fractal color variation. Click on the T button to enter the Color Texture panel. To add some fractal noise we need to select it in the Texture Type popup.

To apply the effect, we need to change two values for the noise. Set the Texture Size to X: 100mm, Y: 100mm, Z: 100mm and the Texture Color to R: 78, G: 77, B: 48. Click the Use Texture button at the bottom of the panel to bring us back to the Surfaces Panel.

6. At the bottom of the Samples Panel click Render to see a preview of our texture so far. You should now have a nice blend of color from a brownish hue to a gray. The surface is too smooth, however, so we need to add some elevations for a more realistic look.

7. At the bottom of the Surfaces Panel is a T button next to Bump Map; click it to open the Bump Map Texture Panel. One of the more natural procedurals in LightWave is Crumple, so make Crumple the Texture Type. The only value we need to change for our needs is to match the Texture Size with that of the Fractal Noise we added to the Surface Color. Therefore, set the Texture Size to X: 100mm, Y: 100mm, Z: 100mm. Render a sample [s] of the surface and notice that there are now crumply patterns on the surface making it look more like clay. Close the panel by clicking on Use Texture and activate the Smoothing checkbox.

8. Activate the Objects Panel and save the object.

9. Return to the Surfaces Panel and change the Current Surface to "LongHouseInterior." If you recall, this is the poly we placed inside the doorway so we didn't have to build an actual interior. Also, since our birds are going to flock inside the Longhouse, this panel gives us a clear vanishing point for the birds inside. With all that said the surfacing of this section is quite simple. We want a surface that does not transmit light back to the camera. We can make this happen by setting the Diffuse Level of the surface to 0%.

The following images we will be using to texture the remaining surfaces of the Longhouse will be availible on my Web site and the NewTekniques Web site. I will be referring to them by name here and using them as figures in the article so it will be clear which images go where.

10. In the Surfaces Panel change the Current Surface to "Log." Since the logs we created are the most prominent feature of the Longhouse, we should not use procedurals for their surface. I got a scanned picture of an old knotty wood to use for the logs. This image is called

Figure 4

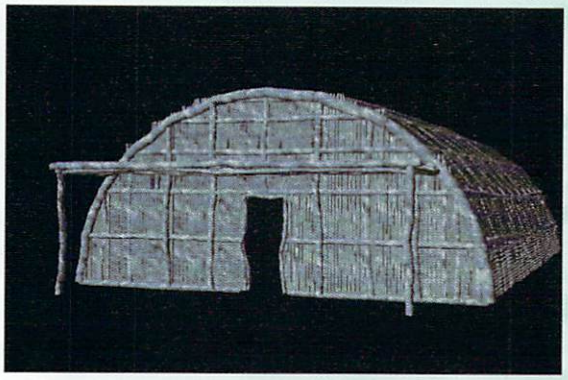


Figure 5

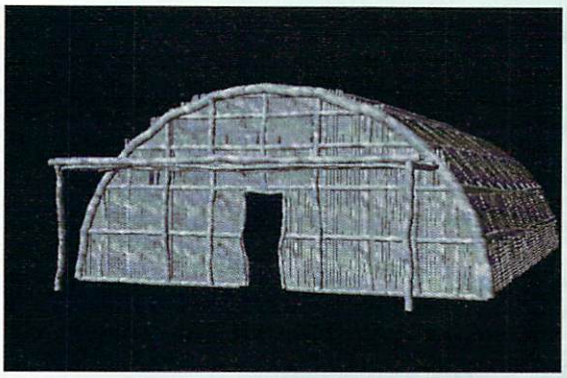


Figure 6

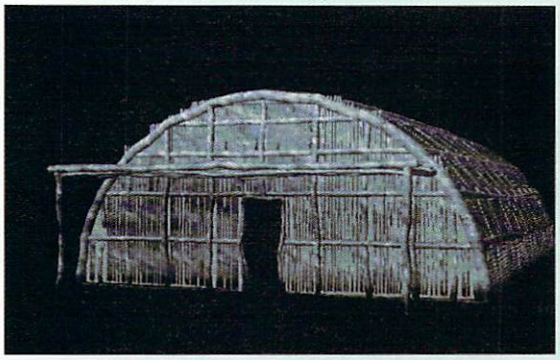
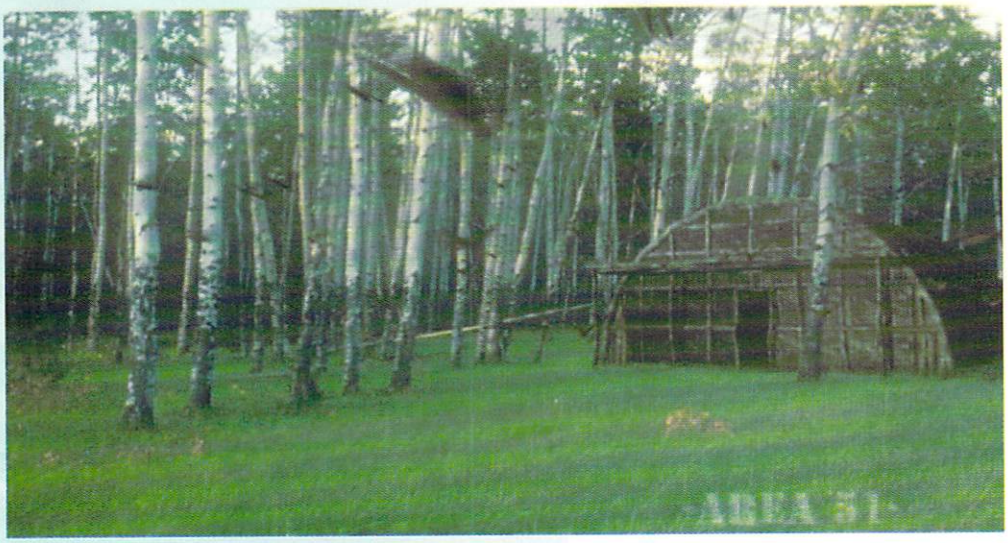


Figure 7



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NONLINEAR EDITING
Circle #218

"OldWood_Normal.iff" (Figure 2). The first thing you'll notice is that the image is not a seamless one. In future articles we will be branching out of LightWave and into paint programs like Photoshop were we will discuss painting techniques. For now, though, I have supplied the finished seamless map I created, "OldWood_Seamless.iff," (Figure 3). The final images we need is a grayscale called "HouseTrans.iff" shown as Figure 4.

11. In the Images Panel load the three images.

12. Returning to the Surfaces Panel, select the T button on the surfaces color line. Here is where we will be applying "OldWood_Seamless.iff" to the color channel of the surface. Since our Longhouse logs are not all aligned on one axis we can't Planer Map and since we want to surface the front, back, and sides at the same time we can't Cylindrical Map it, either. Fortunately, LightWave provides us with a mapping type we can use—it is called Cubic. Set the Texture Type to Cubic Image Map and make the Texture Image "OldWood_Seamless.iff." What Cubic Mapping will do is map all sides of our object equally. This is where having a seamless image comes in handy. Unlike the other mapping styles, where you would be left with a seam down one side of an object or along only one axis, Cubic Mapping will make seams on every axis at once.

13. We want our image to be mapped over the surface several times, so set the Texture Size to X: 1m, Y: 750mm, Z: 2m. This will give us enough repetitions of the image to not make it too stretched. To finish with the color portion of the surface turn off Texture Antialiasing and click on Use Texture. Render [F9] a frame of the Longhouse. Your images should look like Figure 5.

14. Now that we have a good base color we can add a little breakup in the specular. This will add more interest to our surface as light reacts differently across the Longhouse. On the Specular level click on the T button. We are going to use the same image, "OldWood_Seamless.iff" for our Texture Image and we will again be using Cubic Image Map as our Texture Type. The only difference we will make between this and our color map is the Texture Size. Set

that to X: 600mm, Y: 300mm, Z: 1.1m. This will ensure that the Specular and the Image Maps are not aligned even though we are using the same image. Turn off Texture Antialiasing and click Use Texture. On the Specular level check Color Highlights; this will make all light bouncing off the surface of our object become a blend between the surface color and the light color. Render [F9] a frame of the Longhouse. Your image should look like Figure 6.

15. Since our Longhouse has been sitting out on the plains for many a year, our final step in its texturing will be to add some water damage to the base wood and an overall weathering to the surface. We will accomplish both of these tasks with the "HouseTrans.iff" image shown as Figure 4 when applied to the Diffusion Level. Click on the T button next to the Diffusion Level and make "HouseTrans.iff" the Texture Image. Since the front of the Longhouse will be the most prominent section in our final animation, we can break one of the cardinal rules of texture mapping and Planer Image Map this image along the Z axis. The resulting streaks down the sides will get lost in the complexity of the logs and in the shadows of the final image.

16. Click Automatic Sizing to make the image snap to the size of the object. Leave all other values the same and click Use Texture. Render [F9] a frame of the Longhouse. Your image should look like Figure 7.

17. In the Objects Panel save your object.

That completes our texturing of the Longhouse! Since this was not the most action-packed section of our project I have included a frame from the animation we will be creating (Figure 8) to keep you interested. Next time we will be laying the ground work for making our birds flock to the hut. Since we'll be using Particle Storm, you may want to pick it up. As always I can be reached at uberscott@uberfx.com.

Circle #219

Circle #220

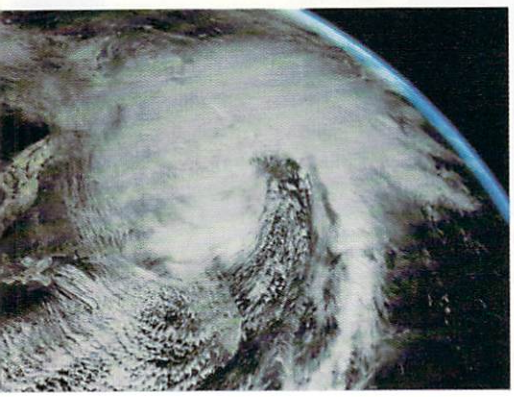
WAVE F/X

LIGHTWAVE SUCCESS IN THE COMPETITIVE TV & FILM F/X MARKET

LightWave 3D recreated the "Storm of the Century" for National Geographic, courtesy of Radical 3D.

BY GREG NELSON

STORM OF THE CENTURY



LightWave 3D shot of March 13, 1993, "Storm of the Century" just past Florida, working its way up the East Coast. (Image courtesy of National Geographic.)

In March 1993, the National Weather Service computers were humming along nicely, when one of them began predicting a shift in both the polar and tropical jet streams. According to that computer's model, we were headed for a "century event."

The prediction proved correct. For the first time in the 20th century, the two rapidly moving rivers of air slammed into each other over the Gulf of Mexico. The world watched as the largest, most powerful storm ever recorded on the planet Earth engulfed the entire eastern United States and stretched down to South America. It was called the "Storm of the Century," the name National Geographic appropriately gave to its recent NBC special chronicling the event.

To better illustrate the storm's size and intensity, the "Storm of the Century" producers turned to Los Angeles, CA-based effects company Radical 3D to bring the storm to life.

"It's not as difficult as you might think," said Radical 3D's owner Jason McKinley, who is also an animator. For all intents and purposes McKinley is right. It isn't a complex shot at all, but it took a significant amount of forethought to get it right.

First, they needed to establish the scene requirements. In this case, the producers wanted to start in close on the Earth and pull back, revealing the storm's immense size. Not too difficult. A keyframe here, a keyframe there, and your motion is done.

Next, Radical 3D needed to determine how much detail was necessary.

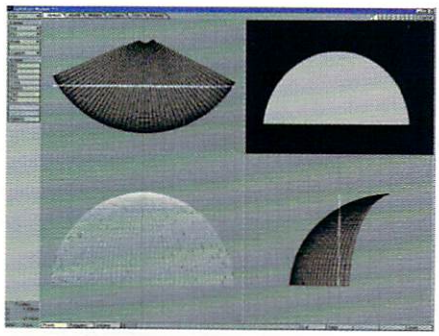
"They wanted to be pretty close to the Earth, so we were using huge image maps—up to one kilometer per pixel," said Radical 3D animator Jim Dziadulewicz. For an image map with that kind of resolution, Radical 3D selected the high-resolution Earth image from ARC Scientific Simulations.

"You know the shot from Deep Impact where we see the comet slam into the Earth? It's the same image," Dziadulewicz said. "We just darkened it up a little to make the whole scene look more dramatic."

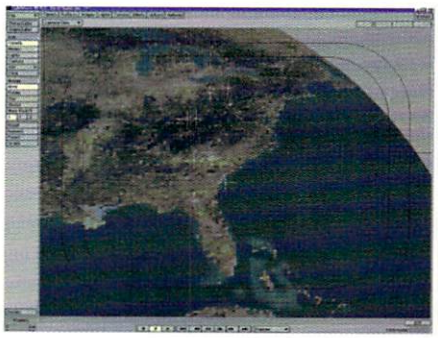
Dealing with an image of this size is where forethought comes into play. You have to ask how much you really need. The entire

Editor's Note: *We are honored to introduce Greg Nelson, a senior animator at Disney D/fx who joins* NewTekniques *as the new WaveFX columnist. Nelson is a long-time LightWave 3D user (since it first appeared with NewTek's Video Toaster) who also has a degree in journalism. He recently directed the animation for Top Secret, a 360-degree ride film for an amusement park in China (see the* "Designing Top Secret Thrills" *article in the "My Turn" feature of the May/June issue of Digital Studio). Prior to Top Secret, Nelson was the head of animation at ZM Interactive. Within two days after taking over WaveFX, Nelson had already visited two LightWave 3D special effect companies, gathering information on cool LightWave projects that he will be sharing with you in future columns.*

"My goal for WaveFX is to help you become smarter at using LightWave 3D," Nelson says. "I'll discuss the process of using your head, thinking a shot through, and knowing what you want before ever clicking on the LightWave icon."



The sphere object in the background and its morph target in the foreground in LightWave's Modeler.



An OpenGL view of the Earth image map morphed into a partial sphere in LightWave 3D's Layout.

high-resolution image weighed in at about 2GB. It doesn't matter how much RAM you have, that's going to hurt. After determining the shot's necessary field of view, the image was cropped in Photoshop, and saved as a new image map, dropping size and decreasing render times dramatically. The same process was done to the bump map, the specularity map, and the diffusion map.

The mapping was pretty standard, although not exactly what you might think. I don't know about you, but when it comes to mapping the Earth, my mind generally defaults to spherical. It seems logical. However, in this case the answer is actually planar image mapping along the Z axis. I know it seems strange, but play along; it actually makes a lot of sense.

As soon as the image was cropped, it was no longer spherically mappable. So, in order to avoid figuring out how a small image would fit onto a significantly larger sphere without it stretching all over the place, McKinley created a flat plane in Modeler with exactly the same dimensions as his cropped maps. The plane is subdivided several times into about a 1,000-polygon plane.

To do this, give this plane a surface name like "Earth" and save it. Then in Modeler, take the bend tool and curved the flat plane so it had a similar curvature to the Earth. You can give this object a different surface name and save it as a different object.

Now, in Layout, the flat plane gets all the appropriate image maps. Automatic sizing should take care of everything. Then the curved plane becomes the flat one's morph target. Set the morph value to 100 percent and it's done.

The real work in this entire shot was getting the storm to work. "Until this project, the storm never existed as a color image," McKinley said. Since the shot required being very close to the cloud layer, it also required extremely high-resolution images of the storm. It also required knowing where to find them.

Since the storm occurred March 12 through 14, 1993, that was all the information necessary for the National Weather Service (NWS) to do its thing. The NWS can pull raw satellite data and deliver it as a black-and-white image. For the purposes of this shot, the NWS image did not exist in high enough resolution, so Radical 3D delivered it to ARC Scientific to rez it up (see "Terms of the Trade," above).

"We originally planned to do an image sequence that morphed from image to image in Elastic Reality, so you could see the storm rotate over time," McKinley said. However, when you consider the satellite images of the storm coming back from ARC weighed in at 80MB, and there was only a week to deliver, an image sequence was out of the question.

The answer is to map the image the exact same way the Earth image was mapped. The fast way to do it is import the flat Earth object into Modeler, change the surface name to "clouds" and save the object as clouds.lwo. Load the new cloud object into the scene. In the surfaces panel, use the cloud image as a color map, bump map, diffusion map, and transparency map in the same manner as we mapped the Earth images. Then use the curved Earth object as the cloud object's morph target. Raise the cloud object off the surface of the Earth object just slightly, so they are not sharing the same space.

Terms of the Trade

Rez it up — Increasing the pixel depth or amount of pixels in an image. Rule of thumb: Don't increase an image's size much beyond 30% or the image will become blurry. However, in the case of clouds, that can be a good thing.

The only thing left to do is to set key frames for the cloud object, so it appears to move in an easterly direction, from the Gulf of Mexico across Florida. It doesn't have to move much, it just needs to create the illusion of movement.

That's it. The scene is set up and once it is lit, it is ready for rendering. I won't get into lighting because everyone has different tastes for glows, lens flares, and all the drama associated with the sun rising over the Earth.

I know this is a very basic scene setup. However, it is simplified and quick because it was thought out in advance. Ultimately, no scene is ever judged on polygon count. Scenes are judged on final image quality. This just happens to be a simple scene that looks great.

"Storm of the Century" aired during prime time on NBC in mid-May. Radical 3D also simulated a LightWave 3D Sperm whale animation (sonar navigation and a skinned whale) for "National Geographic's Monsters of the Deep." Both are available on video from National Geographic at (800) 261-8183.

Greg Nelson is working as a senior animator for Disney's D/fx division. He can be reached at kidneyboy@msn.com.

Reviews

CANDID OPINIONS ON THE LATEST PRODUCTS AND PLUG-INS

LIGHTWAVE 3D TOOLS
Lightscape 3.1

AMIGA TOOLS
ImageFX 3.0

Lightscape 3.1 Review

BY DAVE THOMAS

Lightscape 3.1 is a radiosity-rendering package that allows you to render scenes with far more realism than the standard LightWave renderer. The program interface includes a large main screen and several smaller windows to the side. The main screen is called the Graphics window. This window displays the geometry that you are going to be rendering. The windows along the side show the various objects, materials, and lights that are being used in the current scene. The program has a pretty simple interface, and it doesn't take long to get used to its controls.

This is a sample of the realistic rendering capabilities of Lightscape.

The package comes with a set of excellent manuals, including a number of good tutorials that got me into the program quickly. The program also supports online help, and the help files in Lightscape are well compiled. Lightscape Technologies (a wholly-owned subsidiary of Discreet Logic) is to be commended for putting together such excellent documentation.

To begin working with Lightscape, you need to import some data. Since Lightscape is not a modeling tool, it supports the importation of a variety of 3D object formats, including LightWave 3D, 3D Studio MAX, and DXF, among others. Once inside the program, you can adjust the surface settings of the objects. Lightscape will read and translate most surface properties, but you can easily edit or add your own by editing Materials (color, transparency, smoothness, etc.). You can also assign texture maps to an object, as well as perform bump and intensity mapping.

Version 3.1 of Lightscape supports drag-and-drop for Materials, allowing you to easily assign a Material to an object simply by dragging it from the Material window onto an object in the Graphics window. You can also texture images from Lvu (Lightscape's image viewing program) or Windows Explorer to quickly assign image maps, which I found to be a very useful feature.

Lightscape supports point, area, and linear lights. It provides a massive amount of lighting control. You can put a color filter on a light, adjust its intensity, and give the light an associated lamp color specification, among other parameters. There are many presets based upon real-world light types available, and it is possible to simulate new lights if you have the correct information from the manufacturer. The program also supports adding daytime or nighttime lighting to the scene, including control over the exact time of day, sky conditions, and the physical location of your scene. Just choose a city, or input the exact latitude and longitude.

Once you have everything set up, you can begin to calculate the radiosity solution. It is also possible to use the navigation controls to move about the scene, studying it from different angles without changing camera angles and re-rendering. This type of feedback is invaluable, and makes the whole process of tweaking scenes a great deal easier.

Lightscape 3.1 allows you to send a Lightscape file back into LightWave. You have quite a bit of control over how LightWave will interpret the Lightscape lighting information, including using a plug-in like Gaffer to better control the lighting.

Lightscape is not the kind of program you're going to master overnight.

There's quite a bit of lighting theory that you have to understand in order to get realistic results from the program.

Lightscape produces some amazing imagery. While radiosity rendering takes some time, the results are worth it. The images that Lightscape can create are among the most realistic 3D renderings that I have ever seen. If you're involved in architectural work, design visualization, or working on shots that have to look completely real, Lightscape is the program to use.

Get more information on Lightscape 3.1 from the new InfoTek service located at www.newtekniques.com/infotek

ADDITIONAL INFORMATION

Lightscape 3.1
$545 Windows 95/NT

For more information on this product, visit the NewTekniques InfoTek service at: www.newtekniques.com/infotek

Circle Number 110 or enter it at the InfoTek area of the NewTekniques Web site.

BY JOHN JACKMAN

Image FX 3.0

ImageFX 3.0 has hit the streets with a group of new features that significantly raise the capabilities of this tried-and-true program.

The new "windowed" interface for ImageFX 3.0 allows multiple files and menus to remain open simultaneously. In the upper left image, "Mr. Outdoors" was photographed in front of a blue screen, then composited with an exterior backdrop using CineMatte in the center image. The image in the upper right is layered, with the "Pagecurler" effect applied to the top layer; the page curls up to reveal ImageFX-generated clouds in the lower layer.

The most visible change in ImageFX 3.0 is the new "windowed" interface, which allows multiple files and menus to remain open at once on a single screen. Another is the addition of true independent layers, similar to Adobe Photoshop, which allow the user to apply effects to layers discreetly without affecting other layers. For many complex composition tasks, this can be a great (albeit memory-gobbling) convenience. Those who have only worked with composing invisible swap buffers will find a whole new world of fun using layers. ImageFX layers are not quite as flexible as those in Photoshop, but come close. Of course, the tradeoff is that ImageFX still beats the mass market giant hands down when it comes to batch processing and animation. Anyone who has tried working with Photoshop's primitive batch function will be very happy for ImageFX and its extensive ARexx support!

The addition of layers allows ImageFX to expand its cross-platform strength with the addition of support for layered Photoshop PSD files. I tested the program with a number of PSD graphics, including some very large ones designed for 300 dpi print. Each one loaded perfectly and preserved the Photoshop layers properly. I was, however, unable to load any ImageFX-generated layered PSD files into either Photoshop 3.05 or 4.01, so cross-platform nirvana is not yet realized.

A second change many will find important is extensive support for the CybergraphX display system, which works on a number of Amiga 24-bit display cards. In fact, the new windowed interface probably is at its best on a CybergraphX system, where all windows can display in full color depth. Unfortunately, most of the Toaster shops I've visited are not using CybergraphX on their Toaster setups, relying instead on the Toaster framebuffer and standard Amiga display modes. That's okay, though, for the new windowed interface runs pretty well on the standard Amiga chips, though it can only display non-HAM modes. Also, 256-color Hi Res Laced is perfectly usable, especially if you can render out to the Toaster frame buffer to check the results. I'm not sure that I'd like to run this on an Amiga 2000 display, however!

Other new features include "Shatter," which applies animatable particle effects to an image; "Cloud" animates moving cloudscapes; "Splash" adds animatable raytraced water drops and other water effects to an image; and "Pagecurler" adds a classic turning-page effect. The excellent CineMatte bluescreening hook has been refined, and can now autodetect any background screen color. Additional matte correction and output options also have been added.

The new "FXForge" module is worthy of special note, since it allows extensive construction of customized color channel effects. Creating new effects is not child's play, however, so it's fortunate that Nova Design has supplied a whole list of preconstructed effects. Even more handy, the FXForge settings are completely compatible with the Photoshop Filter Factory, and there are literally thousands of free Filter Factory effect formulas available for downloading on the Internet. You might never need to learn how it works!

So what's missing? I have the same complaint I had in my review of version 2.6. This is a program just begging for a time-line-based front-end controller. In fact, this is where ImageFX really falls short of Adobe After Effects.

Overall, I have to give ImageFX 3.0 a big thumbs up. Its strong integration with the Toaster Flyer make it unique in the image processing world and the addition of layers and the new interface are a welcome expansion of the program's muscular and flexible capabilities.

Get more information on ImageFX 3.0 from the new InfoTek service located at www.newtekniques.com/infotek.

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www.newtekniques.com/bonus

ADDITIONAL INFORMATION

Image FX 3.0

$349.95 Amiga new

$79.95 Upgrade from 2.6

For more information on this product, visit the NewTekniques InfoTek service at: www.newtekniques.com/infotek

Circle Number 111 or enter it at the InfoTek area of the NewTekniques Web site.

Shedding Light on Lasers

A new approach to creating lasers in LightWave 3D.

BY DAVE JERRARD

We've all played around with lasers in LightWave 3D at some point in our lives, whether trying to recreate famous space battles, or merely to etch out a shiny logo. It seems the most popular method of creating lasers is by creating a long hollow tube, making it luminous, and using the Polygon Edge transparency to make it look like a glowing beam of light. This will usually work, except when it has to move close to the camera. Then it seems to just shut off due to the Polygon Edge setting kicking in again (Figure 1a). Here's another method to try, which solves the disappearing beam problem mentioned above, and adds a few interesting options in the process (Figure 1b).

1. Load Modeler. Start out in the face view by creating a box. Select the Box tool from the Objects menu and drag out a box 10cm square. Hit the 'Enter' key to create a polygon. Use the 'Q' key to bring up the Surface panel, and give this a surface name of "Laser." Center it on the X and Y axis if it isn't there already.

Figure 1a. The laser ship, firing tubular lasers. Note the problem with edge transparency at sharp angles, making the laser vanish in front of the gun.

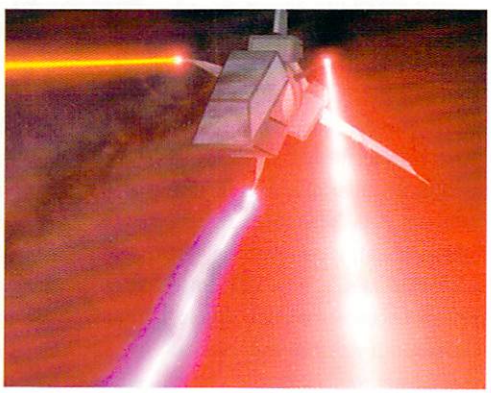


Figure 1b. The same scene, but this time using a few variants of the new and improved non-vanishing lasers.

2. Select two points that are diagonal from one another and delete them. This will leave a diagonal line. Select the Extrude tool in the Multiply menu and extrude this along the Z axis. Use the default setting of 1 meter for this. You will now have a 1-meter-long panel consisting of two polygons. We only need one, so go to the Polygon menu and perform a Unify. This is important, as it will avoid any render errors later on.

3. Select the Mirror tool and center it on the X axis. Hit Return to activate it. This will give us a simple object that looks like a thin extrud-

ed X (Figure 2). Save the object as Laser.lwo and that's it! We're done! Well, almost.

4. Load Layout. Before doing anything else, make sure the scene is cleared. You should have one single light in the center of the universe. Click on the Lights button to bring up the Lights Panel. Click on the button for Lens Flare to turn it on. The Lens Flare Options will now be active, so click on this as well. This will bring up the Lens Flare Options panel.

5. Turn off everything in this panel, except Central Glow and Red Outer Glow. These are the only two options we need for now. Set the Flare Intensity to 75% and click the Continue button.

6. Bring up the Camera Panel and click on the Custom Size button. Enter a value of 400 for width and height so we get a perfectly square image.

7. Go to the Record Panel, and set it up to save frames under the name of LaserMap.

8. Click the Render button and leave the options set to Manual Frame Advance. In a second or two, you will have a simple lens flare in the center of the frame, just slightly smaller than the width of the frame itself (Figure 3). You may want to locate the frame we just saved and rename it to get rid of the unnecessary frame number.

9. Clear the scene again and load up the Laser.lwo object we created in Modeler. You will need to move the camera slightly in order to view it since it will load edge-on to the camera.

10. Go to the Images Panel and load up the LaserMap image we created in steps 5 to 8.

11. Open the Surfaces Panel and select the surface named Laser. From here, we can create a wide variety of laser and energy effects, but to get started, we'll just make a simple, run of the mill laser. First, set the color to black by entering 0 for all three-color channels. Now, click the 'T' button next to Surface Color. In the texture panel that opens up, select Planar Image Mapping and set the mapping axis to Z. Select the LaserMap image as the image map, and click on the Automatic Sizing button. Turn the Texture Anti-aliasing off, then click on Use Texture. Set the Diffuse Level to 0% and raise the Luminosity to 50%. Finally, activate the Additive feature and make this surface Double Sided. Press F9 for a test render (Figure 4).

What we have is a nice long laser-like effect that follows LightWave's lens flare intensity falloff by simply stretching the cross-section of a lens flare along the surface of the polygons. Since we used a

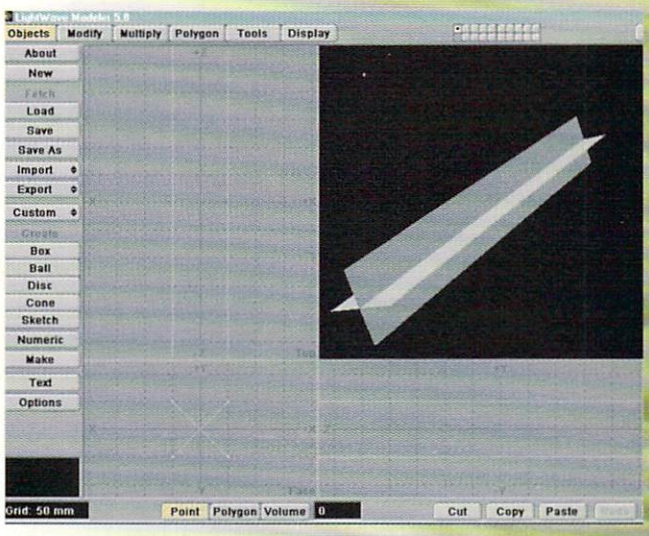


Figure 2. A laser beam's humble beginnings.

pair of perpendicular, intersecting polygons, the laser will be visible and evenly luminous from start to finish, from any direction (except end on, which we'll cover soon). The beam's length can be adjusted simply by stretching it in Layout and creating new keyframes. Likewise, the width of the beam can also be adjusted by stretching it on the X and Y axis, making it look brighter or dimmer. Save this object as GenericLaser.lwo since we'll be using it a few times later on. Now, about those harsh edges...

Figure 3. The other half of the laser beam, a simple flare.

12. Select the Light as the edit item, and parent it to the laser panel. Keyframe it there and open the Lights Panel. In here, click on the Lens Flare button, and then open the Flare Options. Activate the Fade in Distance button and give a Nominal Distance value of 2 meters. Raise the Flare Intensity to 100% and close the panel again. Move the camera toward the far end, and face it back toward the light. Now, when you do

Figure 4. Instant laser, almost!

Figure 5. Now, this is looking better.

Figure 6. Phasers firing, captain!

a test render, you'll have a visual source that the laser seems to be coming from (Figure 4).

This not only covers the edges, but adds to the effect as well, visually pinning the laser to its source or target. The same can be done for the end that hits the target, as seen in the title image. The object in its current state will be enough for most applications, but let's explore some other possibilities.

We still have a slight problem due to the shape of the laser. It still has an obvious flatness to it, which is very apparent at some angles. We can use LightWave's Motion Blur feature to smooth it out and give it a sense of volume while we're at it.

13. Open the Motion Graph for the Laser Panel and select the Bank graph. Create a keyframe at frame 1 and give this a value of 180 degrees. Set the End Behavior to repeat and close the panel.

14. In the Camera Panel, set the Anti-aliasing level to low and turn on Motion Blur. Leave the Blur Length set at 50%. Close the panel and hit 'F10' to render.

In a few moments you will have a laser bolt, this time with its end smoothed out a bit, giving a slight misty, glowing effect. This laser bolt can now be viewed from virtually any angle without any flattening effects occurring like we had earlier. We've just rendered this object at five different angles as it rotated on its axis. The Blur Length of 50% only covers half of the movement from the current frame (frame 1 in this case) to the previous; thus the laser object only seemed to rotate 90 degrees. The other 90 degrees occurs between frames and is not seen. Since the laser object looks the same from above as it does from the side, we only had to render half of its full rotation to have it end up looking the same as it did when it started rotating. It's also important to remember to render frame 1 and not frame 0 when rendering motion blur. Frame 0 will not calculate the effects of motion blur.

You may notice a slight star-like pattern emerging from the way the individual anti-aliasing passes rendered the panel as it rotated. Higher anti-aliasing levels will smooth this out even more by filling in these spaces with additional passes, but at a severe cost in render time. If you regularly render a scene with Enhanced AA, then this blurring will not add any time to the renders. Upping the AA to medium or high sure will, however. Luckily, we can reduce this artifacting without adjusting the AA level at all and at the same time increase our control over how the final beam looks. If you use Field Rendering, you'll need to double the amount of rotation again. The amount of motion blur is a percentage of movement going back to the previous frame, or in the case of field rendering, the previous field. With Field Rendering on, a 50% motion blur will only cover half the object's motion in each field, so by doubling the rotation, we will have a full blurring from one field to the next. In the example above, we would have to double the 180-degree rotation per frame to 360 degrees if we want to use Field rendering.

15. Turn off the antialiasing for now and open the Objects panel. Load a duplicate of the Laser object and close the Objects Panel.

16. Parent this second Laser object to the first, then rotate it on its bank by 45 degrees and keyframe it at frame 0. Do a test render and observe what happens.

This time, the laser appears twice as intense as it did when there was only one object due to the fact that the surface is Additive. If we used a luminosity of 100%, this would have looked more like a close-up of a white fluorescent tube. There are three ways we can control the intensity. We can adjust the luminosity, which is the most obvious choice. We can also adjust the texture opacity for the image map we applied. A 50% luminosity and 100% texture opacity will give the same effect as 100% luminosity and 50% texture opacity, as long as the base color is black. The third method is the use of Object Dissolve. This will allow us to animate the intensity of the laser in the same way we would use the Flare Dissolve option for lens flares.

We can also view the laser with less worry about its orientation, making life that much easier for us. If we apply motion blur again, we can smooth out the edges more effectively at lower antialiasing levels. Since we're using a 50% blur length, we'll need to rotate our lasers 90 degrees at frame 1 to cover the 45-degree difference between the two objects (50% of 90 equals 45).

17. Open up the Motion Graph for the first Laser object again, and change the bank value for frame 1 to 90 degrees. Go to the Camera Panel again, reset

Antialiasing to Low, and turn on Motion Blur again. Do another test render of frame 1 (Figure 5).

You'll notice the blurring is much smoother this time because the object was rotating less, placing the AA passes much tighter together. We could go on adding more polygons to smooth this out even more, but multiple layers of transparency have a bad habit of increasing render times. With two copies of our laser object, we only have, at most, four layers of transparency to worry about, which won't impact render time too drastically.

Now that we've covered the basics, let's take a look at some of the endless variations that this method offers. The first obvious variation would be color.

18. Clear the scene and render a flare that is pure white, with no red outer glow, by following the same procedure as outlined in steps 5 through 8. This one will prove useful for some of the effects we'll explore. Render up a few more lens flares, but vary the light color for each. For these colored lights, raise the flare intensity to 100% as well, to compensate for their darker appearance.

19. Clear the scene and load up your laser object. Experiment by replacing the LaserMap image with some of the colored flares using the Replace Image option in the Image Panel and render off some more tests. You might want to start renaming the surface and saving new copies of this object under different names. I recommend creating a directory to keep all these lasers in one convenient place. You're sure to want to save a few of these for later.

20. Now that we've played with color, let's add textures. Clear the scene and load up one laser object. This time, we'll surface it differently, and use a fractal noise to define the color. Open the surface panel, and enter the following settings:

Surface Color: 255, 255, 10
Texture: Fractal Noise
Texture Size: X: 0.05
Y: 0.05
Z: 0.01
Color: 255, 60, 10
Frequencies: 3
Contrast: 1
Luminosity: 0%
Additive: On
Texture: Planar Image Map

Use the white lens flare image as the image map for the luminosity, mapped along the Z axis like we did earlier. Use Automatic Sizing to quickly fit the image to the object and do another quick test render. In a few seconds, you should have a close replica of those familiar energy beams fired by that famous starship (Figure 6). All that's left is to add some texture velocity to the fractal noise to give it some added life. Try a value of 0.1 along the Z axis and 0.005 on the X or Y axis. Feel free to experiment with various color combinations and texture types. There's an endless variety of possible styles with this simple method alone, but what if you want something that's not always so straight?

21. Here's where the importance of having the polygons built at 45-degree angles comes into play. Clear the scene and load up the original Laser object. We'll surface it a bit differently again, but this time, we won't use the lens flare image. Remove all textures and set all the basic texture values to 0%. Give this a deep blue color. Click on the color channel's texture button and select the marble texture from the pop-up. Enter the values listed below, paying close attention to the Texture Center value. What this does is position the texture so that one marble vein will run down the exact center of our laser object. Normally, the center of the marble texture is half way between two veins, so we simply used an offset that is half the Vein Spacing amount. Without this offset, the closest veins would be running 0.25 meters to either side of our laser, too far off to be visible.

Surface Color: 15, 85, 255
Texture: Marble
Texture Axis: X axis
Texture Size: X: 0.05
Y: 0.05
Z: 0.05
Texture Center: X: 0.25
Y: 0
Z: 0
Texture Color: 255, 175, 220
Frequencies: 6
Turbulence: 0.025

Figure 7a. Playing with electricity has never been safer.

Figure 7b. Another marble texture, this time in orange, gives a foggy look to the effect.

Figure 8a. A marble vein, mapped on the X axis, looks fine on the horizontal polygon, but it completely covers the vertical one.

Figure 8b. The same vein, this time mapped on two angled polygons.

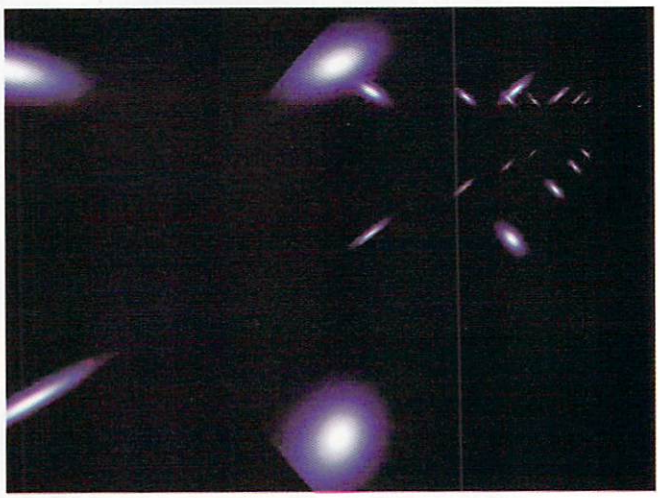


Figure 9a. Very pretty. The result of mapping a repeating flare image on the X axis, in this case with a blue flare.

Vein Spacing: 0.5
Vein Sharpness: 25

11. Let's light it up. Make sure the luminosity value is 0%, then click the texture button for this attribute. Again, select the Marble texture, and enter the same values here, with one exception. This time, the Vein Sharpness will only be 15. This will create an identical marble vein that matches the color one above, but will be slightly wider. A wider vein will lighten not only the colored vein above, but also some of its surrounding color.

Luminosity: 0%
Additive: On
Texture: Marble
Texture Axis: X axis
Texture Size: X: 0.05
Y: 0.05
Z: 0.05
Texture Center: X: 0.25
Y: 0
Z: 0
Texture Value: 100%
Frequencies: 6
Turbulence: 0.025
Vein Spacing: 0.5
Vein Sharpness: 15

A quick test render will show a bright pink vein (the color texture) with a blue glow around it (the base color), which looks remarkably like a stroke of lightning (Figure 7a).

Try this technique using various color combinations and texture sizes. Leave the vein spacing alone for now since changing this could cause the whole thing to vanish. Try adding some velocity to the texture. Remember to not only apply velocity on the Z axis, but also on the X or Y axis. This will cause the texture to change shape over time as well as seem to move along the length of the object. There is one rule here to follow: Do not apply a velocity to the same axis as the Texture Axis! This would cause the vein to slide sideways and vanish, which is something we just don't want. A marble texture can be better understood if you picture it as a stack of crinkly paper impaled on a skewer. The skewer would represent the Texture Axis, and each sheet of paper would represent a marble vein. What we see on a marble surface is a cross-section of this stack, where the polygons of the surface would intersect these "pages."

Each marble vein is actually a wrinkled plane that runs perpendicular to the mapping axis, and parallel to the other two.

This last point is exactly why we built our laser object with the polygons at 45-degree angles. If we were to try mapping a marble vein to a similar object whose polygons were not angled, we would have one polygon, which looked all right, but the other polygon would have the marble vein covering its entire surface. To see this, rotate the laser object 45 degrees on its bank, and activate World Coordinates. A test render now will show a marble vein affecting the entire surface of the vertical polygon (Figure 8a).

Another reason to angle the polygons is for image mapping. Since both polygons are at 45-degree slants, they now have the exact same dimensions, being 0.1 meters tall as well as wide. This is ideal for image mapping purposes, since an image mapped on the X or Y axis will appear identical on both polygons (Figure 8b). This can open up even more possibilities. Here's a favorite:

13. Clear the scene again, and load up a laser object. Rename the surface to "rings" and click the Surface Color texture button. You'll see the old lens flare image still there, which is fine. Change the mapping axis to the X axis, which will map the flare sideways onto the object. Change the texture size to X: 0.05, Y: 0.05, Z: 0.2. Click the Texture Center button, and change the texture center to 0.025 on the Y axis and 0.5 on the Z axis. Make sure both width and height repeats are turned on for this. While we're here, set the Alpha Image to the flare as well. This will make the flare image look a bit smaller and more intense when rendered. Click the Use Texture button, and then raise the Luminosity to 200%. Make sure you can see the object through the camera, then hit F9 for a test render (Figure 9a).

What you'll see here is an array of lens flares, forming two parallel rows on each polygon. Nothing much to look at while it's stationary, but set it spinning like we did earlier, and it's a different story. For best results, add a clone of this object, rotated at 45 degrees to the first, as we did earlier. You'll notice there's a line down the center where the effect is completely transparent (Figure

9b). The reason for this is there is no visible color at the center of the object as it is. As each polygon rotates edge on toward the camera, it becomes less visible, and since polygons have no actual thickness to them, they are invisible edge-on. This isn't really a problem, since this effect looks best when combined with one of our earlier lasers (Figure 9c).

This is just one example of what effects you can get with image mapping in this way. Try using a gradient grayscale image as the Luminosity texture, fading out over the length of the object to achieve a flame-like effect, similar to that of a blowtorch. Use a Texture Falloff value of 2000 to have the image fade to nothing at the edges, giving a nice tapered look. Now we've opened up a variety of other effects we can achieve with this, like afterburners, torches, spotlight beams, comets, even candle flames! Look closely at the space battle image; the engine flares use this same technique!

We've just touched on the Texture Falloff option, and this is another handy feature that can be exploited. All the effects we've played with so far are best described as steady energy streams. What about those short rapid-fire blaster bolts we've seen so many times in theaters? With the addition of the Texture Falloff, these are just a couple short steps away.

14. Load original laser object into a fresh scene again. Open the Surface panel and click the Color Texture button. From here, click the Texture Falloff, and enter a value of 200% for the Z axis (yes, you can have a texture falloff on the mapping axis). Close the panel, and position the camera off to the side so you can see the entire object stretching across the screen. Do another quick test render, and you'll have a short laser burst on your screen (Figure 10).

It's important to remember that the falloff value is the Percentage of falloff PER meter. This object is 0.1 meters tall and wide, so we'll need a value of 2000% to have a texture fade off to nothing at the very edges. Remember we're making the texture falloff from the center, so it's falling off in both directions. This means the falloff distance is half the actual width/height of the object. The same is true for the length. Our laser is only one meter long, so you'd expect a value of 100% to work, but this falloff starts out from the texture center. After an Automatic Sizing, our textures are actually centered halfway down the Z axis, so we only have 0.5 meters on each side for the falloff, thus the 200% value. Again, experiment with different values, as you will find many interesting effects can be achieved.

Now that we can make all kinds of cool-looking lasers, we need to incorporate them into our scenes. The easiest way is to set up your scene normally, getting all your starships, characters, and other creations into place first. Once this is done, create a null and parent this to the end of your gun barrels, then load up the laser object of your choice. This is where it's nice to have a collection of premade effects. Parent the laser object to the null, along with a point light source. Now, you can set the laser object spinning as outlined above, if need be, and even add additional copies, then use the null object to control the size and direction of the laser by keyframing its rotation and size. Scaling the null to zero on the X and Y axis will effectively turn off the beam, while still letting you see it in Layout, which is great for aiming. Then, just animate the X and Y scales to have it turn on, blow away the enemy, and turn off again.

To fire a short laser bolt, the setup is similar, but this time, don't parent the null to the gun. Instead, keyframe it at the end of the gun it will be fired from. Then, advance a few frames to the point where your bolt will hit its target.

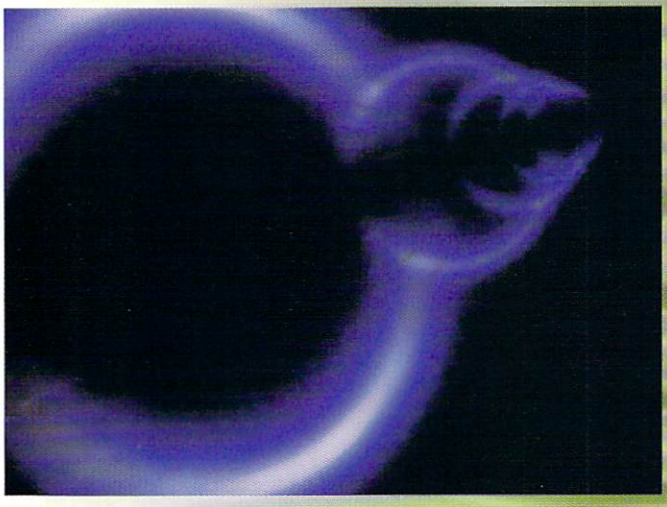


Figure 9b. The same object, this time spinning with motion blur.

Figure 9c. Rings around a fractal green beam.

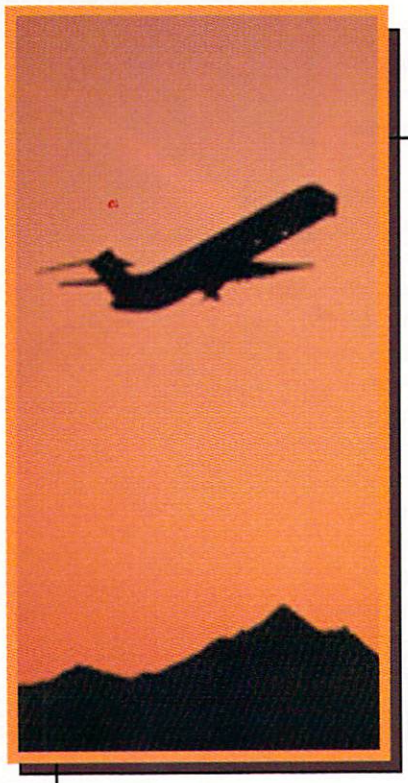
Lock the null's movement to the Z axis by turning off the X and Y buttons under the object edit buttons. Now, holding the CTRL key down, simply move the null along its axis until your bolt has hit the target. Keyframe it here and set the motion type to Linear, under the Spline Controls button. Holding the CTRL key changes the way the mouse moves objects in layout by constraining them to the object's local axis, not the global one. If an object is rotated, and you want it to follow a path that would appear straight from its perspective, just hold that CTRL key down when you move it! It's much easier than trying to position it the old way by switching through multiple views.

The reason we don't parent the null to the gun in this case becomes apparent if your gun is moving. If we did, the bolt would always try to stay in line with the gun, resulting in a laser bolt that wanders around, possibly missing its target completely! This is particularly true if the gun is moving around in a rapid fashion. By the time the bolt would reach its target, the gun might not even be pointed in that direction, meaning the bolt had missed by a long shot!

Well, we've covered quite a few variations on a very simple theme here, which should give you hours of fun and spark those creative juices once again. Now go forth, young warrior, and blow thy enemies to tiny pieces!

Figure 10. The effect of Texture Falloff on the mapping axis.

Dave Jerrard is a LightWave artist living in Canada. He's tired of being snowed upon and is currently targeting the effects houses in the Los Angeles area for a shot at working on one of his favorite TV series.



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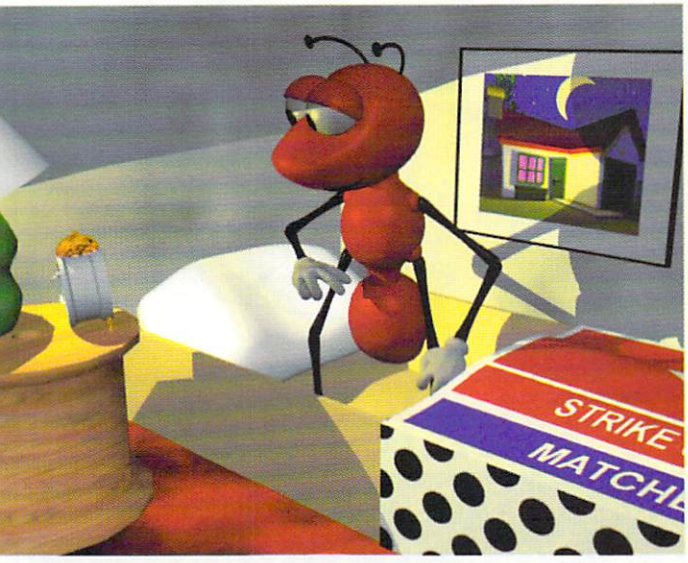
ARTWORK CONTRIBUTED BY OUR READERS

Keridan Elliott—"Early Morning Practice"

Software: LightWave 3D 5.0 and 5.5, Photoshop

Description: This was the winning image in the February LightWave Mailing List contest. The topic was "Olympic Spirit."

email: keri@megatoon.ca



Shannon Wegner—"Hummingbird in Flight"

Software: LightWave 3D 5.5, Fractal Painter, Photoshop, After Effects.

Description: This is a still from a short animation of a hummingbird flying to and away from a small group of flowers. The entire image is built and rendered in LightWave 5.5, with the exception of the blurry background.

email: smwegner@sk.sympatico.ca

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Garrett Sanders—"Travels With My Ant"

Software: LightWave 3D 5.5

Description: This is a still from a demo reel I recently completed.

email: Sandergr@aol.com

Ron Wolfe—"LightWave Storm"

Software: LightWave 3D 5.5, Photoshop

Description: This was the winning image in the March LightWave Mailing List contest. The topic was "Nature's Fury."

email: vrkaya@bright.net

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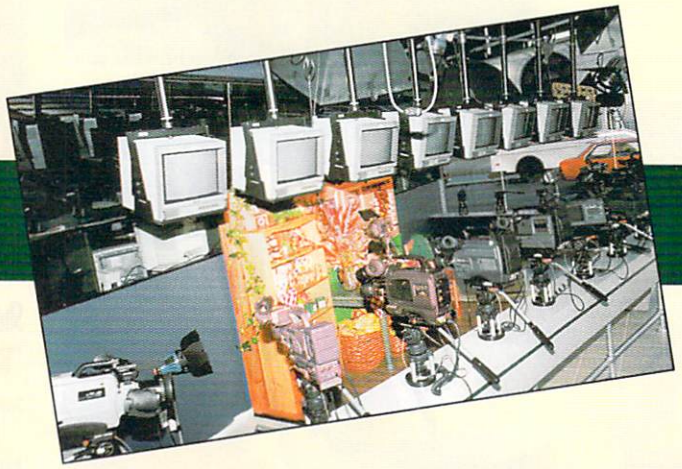

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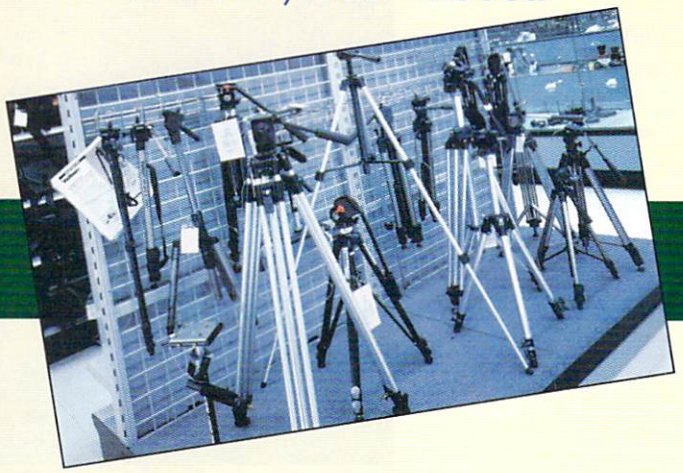

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AG-EZ20
DV Palmcorder with IEEE1394 DV Interface

Innovative and feature packed. AG-EZ20 is easy to use with up to 90 minutes of recording time on a standard battery. It has a surprisingly rugged, durable body that is also compact and comfortable to hold, making it ideal for use in the field for single handed news gathering operations. Features include Photo Shot which is useful for creating video photo albums or insurance tapes. As many as 750 pictures can be recorded on a 60 minute tape. To enhance creativity, the lens can accommodate settings which include focus, gain, white balance, shutter speed and backlighting.

- Equipped with the IEEE1394 DV interface so dubbed recordings will be clones of the original, or download to your computer where they can be edited. (DV capture card and third-party software required).
- Can record in both SP and LP modes for up to 1.5 hours of recording on a 60-minute tape–with no degradation in picture or audio quality. SP mode is provided for compatibility with Panasonic's DVC PRO VCRs.
- Digital Electronic Image Stabilizer prevents jittery video.
- Variable speed 10:1 power zoom lens, plus 100:1 digital zoom. Lens can focus up to 1/4-inch from the subject.
- 180,000 pixel color viewfinder for remarkably clear viewing.
- Time date stamp with seconds for legal and law requirements like depositions & crime scenes.
- Digital effects include audio and video fade, wipe, mix, strobe, solarization and trail. Also has sepia tone for an antique look and negative/positive so film negatives can be converted in-camera to viewable pictures.
- 3.8-inch color LCD monitor (131% more area than a 2.5-inch display) rotates 270° vertically and 180° horizontally, so you can monitor your shoots – no matter the angle.
- Full manual control of focus, gain, white balance, shutter speed and backlighting.

AG-EZ1 3-CCD Digital Video Camcorder

- Digital recording delivers 500 lines of horizontal resolution with no noise. (S/N ratio is 54dB).
- 10:1 power and 20:1 digital zoom lens. Both zooms are adjustable in four speeds (3.5-15 sec.) For extreme close-ups the lens can focus up to 1/4" from the subject.
- Two digital audio modes, choose between two-channel 16-bit stereo recording or two sets of 12-bit stereo.
- Huge 1.5" 180,000 pixel color viewfinder with 400 lines of resolution displays all functions on demand.
- Digital Electronic Image Stabilizer (DEIS) compensates for jittery video. Particularly effective when the digital zoom is employed.
- Variable speed shutter from 1/60— 1/8000 of a second
- Built-in SMPTE time code generator.
- Digital Photo-Shot lets you record a still-frame for six seconds, while audio continues as normal. 290 still pictures can be recorded on a single 30-minute tape. TopScan function finds any shot easily.

NEW! AG-EZ30
World's Smallest 3-CCD Camcorder with IEEE1394 Interface

The AG-EZ30 combines 3-CCDs and the DV format to deliver a level of picture and sound quality that makes it one of the most advanced camcorders of its kind. Weighing just 1.5 lbs. this incredibly lightweight camcorder also incorporates a large 2.5-inch color LCD monitor and has a host of sophisticated auto functions as well full manual control when required.

- 3-CCDs (270,000 pixels each) with a large light-collecting area give the camera high sensitivity and wide dynamic range. Double-density pixel distribution and a gapless dichroic prism further ensure razor-sharp images and extremely faithful color reproduction.
- Selectable 2-channel 48 kHz/16-bit or 4-channel 32 kHz/12-bit PCM audio recording.
- Built-in stereo mic and external mic input as well.
- 180,000 pixel, 2.5-inch color LCD monitor. Also has a 0.5-inch color viewfinder.
- Digital Image Stabilizer for clear, shake and jitter free shots.
- 12X optical zoom as well as 30X and 120X digital zoom functions. Move from wide-angle to full zoom in 1.3 seconds allowing quick framing while in REC pause.
- Offers six digital effects: Wipe, Mix, Strobe, Gain-Up, B&W and still mode.
- Large-diameter focus ring enables a high level of focusing precision. A Multi-Function Push Dial allows easy setting of the 16-step iris, 5-step gain control (+12dB maximum) and 14-step shutter (up to 1/8000 second). Mic input level can also be set in steps (-20/-10/0/+3/+6 dB).
- Five program AE modes for shooting in a variety of different conditions. There is also a five-mode white balance: Set , Fluroescent, Auto, Indoor and Outdoor.

Canon XL-1
3-CCD Camcorder with Interchangeable Lens Mount

With 3-CCDs, exclusive interchangeable XL Lens Mount System, unmatched optical technology, SuperRange Image Stabilizer, DV and simultaneous four channel audio recording, the XL-1 offers unmatched image quality and shooting versatility.

Interchangeable XL Lens Mount System
- Interchangeable XL lenses for unsurpassed flexibility and superior range. XL lenses incorporate the highest quality, multi-coated optics to achieve 600 lines of resolution.
- In addition to the standard 16:1 lens, there is an optional 3X wide-angle lens, a 1.6X extender and an EF to XL adapter.

16:1 Optical Zoom with SuperRange Image Stabilizer
- The 16:1 has a focal length range of 5.5 to 88mm (35mm equivalent of 39 to 633mm). It offers variable speed zoom, manual zoom and manual focus control and has a one-push auto-focus button and built-in 1.5X ND filter.
- Besides a gyro sensor, the SuperRange Optical Image Stabilizer uses a motion vector to examine the image after it is received by the CCD to detect any shake missed by the gyro. Data is then fed back to refine the movement of the vari-angle prism resulting in the most advanced stabilization system available today.

Digital Audio
- Three digital audio modes (16 bit and two 12 bit modes) and simultaneous recording of four separate tracks. You can output each signal independently.
- Audio inputs with independent level controls.
- Optional MA-100 Mic Adapter/Shoulder Pad allows use of two XLR mics and allows shoulder mounted shooting.

3-CCDs
- Three 270,000 pixel CCDs with advanced Pixel Shift technology achieves 530 lines of resolution.
- Large 72 micron CCDs deliver a 4dB improvement in sensitivity. Vertical smear is also dramatically reduced.

Three Recording Modes:
- High resolution full motion video (Normal Movie Mode)
- High resolution stop action images of moving subjects (Frame Movie Mode)
- Perfect stills (Digital Photo Mode).

Unique Design & Dual Action Carrying Handle
- In additon to the normal side grip,the handle includes an additional start/stop switch and zoom control for dual-action shooting.

Additional Features:
- 180,000-pixel color viewfinder
- Zebra pattern and color bar generator
- Automatic and manual white balance, gain (five preset levels from -3 to +12dB) and exposure lock.
- Composite, S-Video output, DV (IEEE 1394) in/out, Control L
- Digital fader and wide screen TV effect
- Headphone jack with level adjustment
- Remote control with jog/shuttle dial

QUICK DIAL 74

SONY

DSR-200A
3-CCD Digital (DVCAM) Camcorder

Combining a compact and lightweight body with the superior picture quality of DSP (Digital Signal Processing) and the DVCAM format, the DSR-200A is the ideal acquisition tool for video journalists, event and wedding videographers, stringers and production houses. 500 lines of horizontal resolution, 48kHz or 32kHz digital audio, three hour record time, and minimum illumination of 3 lux is only the beginning. Other features include 16:9/4:3 capability, Steady Shot, high resolution 1-inch viewfinder, time code operation, time/date superimposition and an IEEE-1394 interface for direct digital output. Offers full automatic as well as manual control of focus, iris, gain, white balance and shutter speed.

- Variable servo 10X optical power zoom lens goes from 5.9 to 59mm in 1.7 to 24 seconds. The manual zoom rocker is continuously variable right up to where the digital 20X zoom kicks in.
- Sony's Super Steady Shot reduces high frequency camera shake without compromising image quality. SteadyShot uses horizontal and vertical motion sensors that allow it to work accurately while zooming, moving (even shooting from a car), and shooting in low light conditions.
- Has digital effects including audio and video fade, overlap and Slow Shutter.
- Automatic and manual focus, iris, shutter, gain and white balance. Iris is adjustable in 12 levels from F1.6 to F11, shutter from 1/4 to 1/10,000 of a second in 12 steps, Gain from -3dB to +18dB in 8 steps.
- Zebra Pattern indicator, built-in ND filter.
- Custom Preset function lets you preset, store and recall custom settings for color intensity, white balance (bluish or reddish), sharpness and brightness.
- Stores Photo, Date/Time, Shutter Speed, Iris, Gain and F-stop for easy recall. So if you have to re-shoot, you know your original settings for every scene and frame.
- Records Drop/Non-Drop Frame time code. Time code can be read either as RC time code or as SMPTE time code
- Has a large 1-inch B&W viewfinder with 550 lines of resolution for easy focusing even in low contrast lighting situations. Separate information sub panel displays time code, battery time, tape remaining and other camcorder functions without cluttering up the viewfinder.
- Records 16-bit/48kHz audio on one stereo track or 12-bit/32kHz with two pairs of stereo tracks (L1/R 1, L2/R2), so you can add stereo music or narration.
- One-point stereo electret condenser mic for clear stereo separation. Directivity can be selected from 0°, 90° & 120°.
- Automatic & manual (20-step) audio level record controls. Monitor audio with headphones or from the LCD panel which has an active VU meter.
- XLR input connectors for mics and audio equipment.

DSR-200A Field Package:
- DSR-200A Camcorder • NPA-1000/B Battery Case Adapter
- 3 NP-F930/B 7.2v 4000 mAH Batteries
- AC-V900/B AC Adapter, Triple Battery Charger
- VCT-U14 Tripod Adapter • LC-2000CP System Case

DSR-30 DVCAM Digital VCR

The DSR-30 is an industrial grade DVCAM VCR that can be used for recording, playback and editing. DV standard 4:1:1 sampling digital component recording with a 5:1 compression ratio provides spectacular picture quality and multi-generation performance. It has a Control L interface for editing with other Control L based recorders such as the DSR-200A DVCAM Camcorder or another DSR-30 . It also has a continuous auto repeat playback function making it ideal for kiosks and other point of information displays. Other features include high quality digital audio, IEEE-1394 Digital interface and external timer recording. The DSR-30 can accept both Mini and Standard DVCAM cassettes for up to 184 minutes of recording time, and can playback consumer DV tapes as well.

- Records PCM digital audio at either 48kHz (16-bit 2 channel) or at 32kHz (12-bit 4 channel) .
- Equipped with Control L, the DSR-30 is capable of SMPTE Time Code based accurate editing even without an edit controller. Built in editing functions include assemble and separate video and audio insert .
- By searching for either an Index point or Photo Data recorded by the DSR-200A camcorder, the DSR-30 drastically cuts the time usually required for editing. The DSR-30 can record up to 135 Index points on the Cassette Memory thanks to its 16K bits capability.
- Audio lock ensures audio is fully synchronized with the video for absolute precision when doing an insert edit.
- Built-in control tray has a jog/shuttle dial, VCR and edit function buttons. The jog/shuttle dial allows picture search at ±1/5 to 15X normal speed and controls not only the DSR-30 but also a player hooked up through its LANC interface
- DV In/Out (IEEE 1394) for digital dubbing of video, audio and data ID with no loss in quality.
- Analog audio and video input/outputs make it fully compatible with non-digital equipment. Playback compatibility with consumer DV tapes allows you to work with footage recorded on consumer-grade equipment. Tapes recorded in the DSR-30 are also compatible with Sony's high-end DVCAM VCR's.

PVM-14N1U/14N2U & 20N1U/20N2U
13-inch and 19-inch Presentation Monitors

With high quality performance and flexibility, Sony's presentation monitors are ideal for any environment. They use Sony's legendary Trinitron CRT and Beam Current Feedback Circuit for high resolution of 500 lines as well as stable color reproduction. They also accept worldwide video signals, have a built-in speaker and are rack mountable. The PVM-14N1U/20N1U are designed for simple picture viewing, the PVM-14N2U and 20N2U add RGB input and switchable aspect ratio.

They Feature:
- 500 lines of horizontal resolution
- They handle NTSC, NTSC 4.43, PAL, and SECAM.
- Picture (chrome, phase, contrast, brightness) and setup adjustments (volume, aspect ratio) are displayed as easy-to-read on screen menus.
- Closed captioning is available with the optional BKM-104 Caption Vision Board.

PVM-14N2U/20N2U Only:
- (Last Input Switch) - Contact closure remote control allows you to wire a remote to an existing system so that the monitor's input can be remotely controlled to switch between the last previously selected input and the current input.
- 4:3/ 16:9 switchable aspect ratio

PVM-14M2U/14M4U & 20M2U/20M4U
13-inch and 19-inch Production Monitors

Sony's best production monitors ever, the PVM-M Series provide stunning picture quality, ease of use and a range of optional functions. They are identical except that the "M4" models incorporate Sony's state-of-the-art **HR Trinitron** CRT display technology and have SMPTE C phosphours instead of P22.

- HR Trinitron CRT enables the PVM-14M4U and 20M4U to display an incredible 800 lines of horizontal resolution. The PVM-14M2U and 20M2U offer 600 lines of resolution. M4 models also use SMPTE C phosphours for the most critical evaluation of any color subject.
- Dark tint for a higher contrast ratio (black to white) and crisper, sharper looking edges.
- Each has two composite, S-Video and component input (R-Y/B-Y, analog RGB).For more accurate color reproduction, the component level can be adjusted according to the input system. Optional BKM-101C (video) and BKM-102 (audio) for SMPTE 259M serial digital input.
- Beam Current Feadback Circuit
- 4:3/16:9 switchable aspect ratio.
- True multi-system monitors they handle four color system signals: NTSC, NTSC 4.43, PAL, and SECAM.
- External sync input and outputcan be set so that it will automatically switch according to the input selected.
- Switchable color temp: 6500K (broadcast), 9300K (pleasing picture), User preset.(3200K to 10000K).
- Blue gun, underscan and H/V delay capability
- On-screen menus for monitor adjustment/operation.
- Parallel remote control and Tally via 20-pin connector.

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QUICK DIAL 72

SONY

UVW-1400A Betacam SP Recorder

The UVW-1400A is a non-editing VCR which deliver Betacam SP quality and offer features for a wide range of playback and recording applications. RGB and RS-232 interface make it especially ideal for large screen, high quality video presentation, scientific research and digital video environments.

- Ideally suited for work in computer environments, because RGB signals can be converted into component signals and vice versa with minimum picture degradation.
- 25-pin serial interface allows external computer control of all VCR functions based on time code information. Baud rate can be selected from between 1200 to 38,400 bps.
- Built-in Time Base Stabilizer locks sync and subcarrier to an external reference signal as well as provides stable pictures.
- Built-in LTC Time Code and UB (User Bits) reader/generator
- Equipped with two longitudinal audio channels.
- Auto repeat of entire or a specific portion of the tape.
- Built-in character generator can display VTR status, time code, self-diagnostic messages, set-up menu, etc.
- Control of jog, shuttle, playback, record, pause, FF and REW with the optional SVRM-100A Remote Control Unit.
- Composite and S-Video as well as component via BNCs which are switchable to RGB output. The UVW-1400A has two switchable sync connectors and a Sync on Green.
- Built-in diagnostic function and hour meter.
- Initial set-up menu for presetting operational parameters.

UVW-1700G

Betacam SP Computer Graphics Frame Recorder

The UVW-1700G has all the features of the UVW-1400A (except foot switch control) plus it adds frame accurate video insert editing capability as well as RS-232 and RS-422 interfaces. These make the UVW-1700G ideal not only for conventional video program production but also for animation and computer graphics creation.

Same features as the UVW-1400A *PLUS*—
Uniquely equipped with both RS-232 and RS-422 serial ports for versatile system integration. Both serial ports are easily accessed via the set-up menu. Built-in time code capability combined with sophisticated servo servo system ensures frame accurate insert editing (video only) when connected to computer-based editing systems (via RS-232 port) or RS-422 equipped edit controllers. Ideal VCR for animation and computer graphics creation, where frame-by-frame editing is indispensable.

UVW-1800 Betacam SP Editing Recorder

All the features of the 1400A *PLUS*—

- Optional UVR-60 allows remote TBC adjustment.
- RS-422 interface for editing system expansion.
- Two types of component output; via three BNC connectors or a Betacam 12-pin dub connector.
- Frame accurate editing is assured, thanks to sophisticated servo control and built-in time code operation. In the insert mode of the UVW-1800, video, audio Ch-1/2 and time code can be inserted independently or in any combination.

QUICK DIAL 731

AutoMedia AutoMasker

World's Only Automated Video-Object Masking Tool

An automated tool for accurate isolation of items and figures in a video clip, AutoMasker quickly marks the border of an object in a key frame and then determines the exact border in subsequent frames—even when the object is multi-colored, changing its geometry or moving over a colorful and dynamic background.

Using break-through technology, AutoMasker enables automated masking, isolation, painting, extracting and insertion of selected objects into video streams at a fraction of the cost using conventional frame-by-frame painting. Selected objects can be modified within AutoMasker or in combination with other effects or compositing software. Compatible with Win 95/NT and standard file formats including: TGA, VDA, ICB, VST, FLM, PCS, DCX, BMP, QT and AVI.

- Easy object selection in first frame and exact boundary tracing in subsequent frames
- Easy modification to object border and controlled anti-aliasing
- Simultaneous masking of a number of objects and objects with holes.
- Create mask or colored output movie, including optional alpha channel
- Independent automatic object and background color effects.

$895.00

MeshPaint 3D

Full-Featured Multi-Platform 3D Paint Program

MeshPaint 3D is a full-featured multi-platform 3D paint program that supports multiple 3D animation applications, including Studio MAX, LightWave 3D, Softimage, Electric Image, Strata Studio Pro and Caligari's trueSpace. With MeshPaint, animators can apply paint and textures to their 3D wireframes in real-time as if they were painting a real-world object with paint and a brush. MeshPaint comes with all the standard paint tools, like air brush, brush hose and clone tool, that one has come to expect in a 2D paint program, but allows them to be used in real-time in 3D. MeshPaint also you to paint across multiple textures that have been assigned to a single 3D object. It supports multiple textures per object and the unique TrU-V allows 3D Studio Max users to paint at face level on an object without being restricted by traditional mapping methods.

For PC (Intel) ..... **189.95** **For PC (Alpha)** ..... **249.95** **For Power Macintosh** **89.95**

GENESIS^{vfx}

Special Effects and Lens Flare Plug-in for LightWave 3D and Studio MAX

Genesis^{vfx}, is a revolutionary special effects plug-in that takes basic properties of physics and harnesses them for use in both still and animated rendering. Genesis^{vfx} can create lens flares, sparkles, glows, heat distortions, 3D particle clouds, gas clouds, explosions, and even flowers with complete animation control over every aspect of the effect. Genesis^{vfx} eliminates the usual limitations of most comparable packages–point light sources or complex object linking are no longer necessary. With Genesis^{vfx} you can link any number of objects of any type. The possibilities are limited only by your imagination! And this power has not been added at the expense of program complexity, indeed there are no lists of parameters with cryptic names and wherever possible real time previews are available to reflect the changes being made.

Genesis^{vfx} incorporates a staggering feature set with advanced rendering options such as full field rendering on all effects (even glows, sparkles), analytic anti-aliasing, full animation of all effects, fractal noise, a completely new object flare effect that makes separate glow/sparkle/flare plug-ins a thing of the past,, particle animation that sets a new standard, a wonderfully user-oriented interface with real time feedback at all possible occasions, FULL advantage of multi-processor systems (both in rendering effects and in user interface), unlimited layering capability, and blindingly fast performance. Full binary compatibility of files between the different versions (eg. create and load Genesis^{vfx} effects interchangeably between LightWave and Adobe Photoshop) and much, much more.

For LightWave 3D (Intel) **$319.95**
For LightWave 3D (Alpha) **$369.95**
3D Studio MAX **$339.95**
For Photoshop (PC or Mac Specify) **$149.95**

QUICK DIAL 732

NewTek

LightWave 3D 5.5

3D Rendering and Animation Software for Broadcast Graphics

LightWave 3D is the easy way to create the most sophisticated 3D animation imaginable. It's intuitive, complete, easy-to-use layout and modeling system deliver the ultimate in creative control, not to mention flexibility. Unparalleled features for modeling, surfacing, lighting and animating are right at your fingertips. Raytracing, motion blur, MetaMation, inverse kinematics (IK), Bones, field rendering, lens flares, compositing - they're all here. And with OpenGL and Quickdraw 3D support you can see your creations in real time. Add a robust plug-in architecture, and it's no wonder you find LightWave 3D in more Hollywood animation suites than any other 3D program. LightWave 3D is available for almost platforms: Windows 95, Windows NT, Power Mac, DEC Alpha, SGI and Sun Microsystems.

LightWave 3D 5.5		Upgrades from LW 5.0 to 5.5		Upgrades from LW 4.0 to 5.5	
For PC (Intel)	1599.00	From Intel 5.0	449.00	From Intel 4.0	599.00
For PC (DEC Alpha)	1599.00	From DEC Alpha 5.0	449.00	From DEC Alpha 4.0	599.00
For Macintosh	1699.00	From Macintosh 5.0	549.00		
For SGI	2499.00	From SGI 5.0	899.00		

INSPIRE 3D

3D Art and Animation Software for Graphic Artists, Multimedia Developers and Web Designers (For Mac or PC)

Specifically designed to meet the demand of the graphics pro, Inspire 3D is a powerful program that lets you add a whole new dimension to your work by creating stunning print images, dynamic multimedia productions and slick web visuals that just aren't possible in 2D. With Inspire 3D, you can model, animate and render 3D elements in any style and complexity. By adding texture, motion, lighting effects and more, your print materials will almost pop off the page. Use the images you create as single frame print graphics or as lower resolution animation files for multimedia or the web or choose from a library of pre-created images. And use the photorealistic or stylized animation images you create for real-time graphics applications, including VRML 2.0, for all kinds of projects.

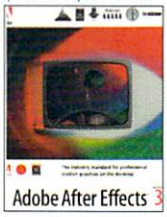
- Compatible with Photoshop, QuarkXPress, Illustrator, Freehand, Director, and more. Create simple or complex animations, transform Illustrator files into animated 3D graphics, create killer photorealistic 3D or cartoon-style images and use pre-created or custom modeling.
- Supports 16 image and seven 3D model formats, gives you your choice of output with resolutions up to 8,000 x 8,000.
- Expandable modeling capabilities and a ton of plug-ins for specialized functions. Features like Spline-based modeling and MetaNURBs let you mold and manipulate objects in ways you never could before, then output them as hi-res images - fast. Use Inspire's library of designer images, create your own - or mix the two for interactive content, games, training materials and movies.
- Quickly and easily create brilliant single and composite images and animations to design exciting web sites.
- Uses LightWave 3D's formidable rendering engine to put true photorealistic capabilities right on your desktop. Gives your 3D images the edge you're looking for.
- Revolutionary modeler lets you create any shape or form you dream up just by clicking on a few points. Then reshape, subdivide, clone, modify, reposition and control any object in 24-bit color and view it in real-time.
- Compositing capabilities let you to build sophisticated, layered images for print or animation and combine 3D elements with 2D images or multimedia. You can also use photographs or video with 3D elements and apply front projection mapping to make the elements accurately cast shadows against the photo or video image.
- Intuitive interface with on-screen tutorial get you up and running fast. Want the easiest way to composite? Need a tip on shadowing? Curious about surfacing options? The on-screen tutorial is an encyclopedia reference, teacher and consultant that not only gets you up and running quickly, but helps you be more productive every time you work.
- Includes a complete library of over 1,600 models, objects and other items for you to use alone or in combination with other graphic elements.

Inspire 3D for Windows **385.00**
Inspire 3D for Macintosh **385.00**

Adobe AFTER EFFECTS 3.1

Compositing, Motion Graphics & Special Effects for Mac or Windows

After Effects 3.1 provides the power and features required by film makers, video producers, editors, graphic designers, multimedia professionals and web developers to produce unlimited composites, fluid animations and sophisticated special effects. Available for Mac and Windows, After Effects is tightly integrated with the Adobe product family, so if you work with Premier, Photoshop, or Illustrator, you already have the skills, shortcut know-how, and hardware to make After Effects a seamless, powerful extension of your creative arsenal. Turn your computer into a motion-graphics studio and put awe-inspiring action into your work.



SOPHISTICATED COMPOSITING:
- Combine digitized materials from any source to create sophisticated composites and traveling mattes using transparency, complex masks and alpha channels. Animate Photoshop layers and Adobe Illustrator art with direct import capabilities.

MOTION GRAPHICS:
- Position and animate layers with unlimited keyframes and sub-pixel accuracy. View and edit your spline-based motion paths on-screen. Ensure super smooth motion at any speed with field-rendering and true motion blur.

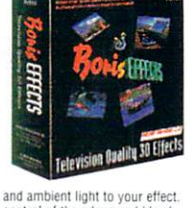
SPECIAL EFFECTS:
- Use use plug-in effects ranging from precise color correction filters to wipes and blurs, and even Photoshop filters. You can also animate each effect independently over time.

AFFORDABLE QUALITY:
- Create anything you can imagine. Get top-quality motion graphics for film, broadcast or CD-ROM— at a fraction of the cost of a dedicated system.

$599

Artel Boris Effects 3.1

A multi-channel DVE generator, complete with intraframe interpolation, matte manipulation, and multiple keyframes, Boris Effects lets you to create your own custom moves. Boris ships with a keyframe library of over 150 customizable effects including cubes. picture-in-picture, chroma keying, tilting,soft edges, masks, filters and compositing of unlimited track of video and graphics. Effects can be saved or used with different video source clips. Create 3D flying logo effects from PICT, TIFF, bitmap, VfW and QuickTime files using an embedded alpha channel. Other features include borders and drop shadows which can be colorized and made soft and translucent, as well as control over camera position and light source with specular highlights. Based on a plug-in architecture, Boris closely integrates into all of today's popular non-linear systems. Once installed, it is easily accessed from their transitions and filters menu. It is not a background application and no extra memory is required.



- Blur and bevel filters.
- Control of image scale (size), positioning, depth and opacity.
- 3D effects with depth control to create cubes or slabs with up to 6 different videos, picts or colors on each of the 6 faces.
- Variable pivot points for unique rotation control.
- Add keyframeable specular and ambient light to your effect.
- Cropping with full softness control of the edges and blend for really smooth soft wipe type of effects.
- Includes a free year of upgrades and full tech support!

For Adobe After Effects (Specify Mac or Windows NT) **349.95**
For Adobe Premier (Specify Mac or Windows 95/NT) **395.00**
For Ulead Media Studio Pro 5.0 ..... **395.00**
For Fast VM-Studio Plus **395.00**
For in:sync Speed Razor **395.00**
For Media 100 ..... **549.95**
For Avid MCXpress NT **549.95**
For Discreet Logic **749.95**
For Avid Xpress (Macintosh) **749.95**
For Avid Media Composer **749.95**

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B&H
PHOTO - VIDEO - PRO AUDIO

DPS PVR-2500
'Perception' Digital Video Recorder

The Heart of an Advanced Digital Audio/Video Workstation

The PVR-2500 offers powerful features for awesome animation, morphing and rotoscoping capabilities. With features like 720 x 480 resolution, 10-bit 2x oversampled video encoding, better than D1 scaling, component and S-Video outputs, multi-processor support and integrated FAST SCSI-2 controller, it empowers your computer to rival the finest professional production studios.

- Full-length PCI card with integrated FAST SCSI-2 controller.
- Multi-format virtual file system ensures complete integration with your Windows NT applications. Any acquired video or computer generated Perception video clips appear simultaneously in many different file formats including TARGA, SGI, BMP and IFF. Perception is compatible with Lightwave 3D, Studio Max, SoftImage and others.
- Performs real-time interpolation of 30 fps video to 24 fps film rates or vice versa. This means that it is also at home on the Hollywood movie set as well.
- Outputs broadcast quality 720 x 480 resolution. Dynamic range is in excess of D1 scaling so images are brighter, have more color and greater spatial resolution than ever before. Component, composite and S-Video outputs are provided via the included breakout cables.
- VCR control simplifies the task of batch digitizing and recording. In this mode, the PVR-2500 can read SMPTE time code from the source deck.
- Includes DPS Lockstep plug-in to provide significant control over 3D Studio MAX
- Coupled with the AD-2500 component video capture card, the PVR-2500 becomes a broadcast-quality digital disk recorder. It delivers unsurpassed picture quality, and storage capacity is limited only by the size/number of attached SCSI hard drives.
- The AD-2500 has component, composite and S-Video inputs for real-time recording. Captured video can also be exported as sequential RGB files for rotoscoping and other compositing applications
- When used with the AD-2500 capture card, a sound card, editing software & one or more SCSI drives, the PVR-2500 becomes a non- linear editor of unparalled performance – an unbeatable price.

QUICK DIAL 731

PINNACLE SYSTEMS GeniePlus
Post-Production System on a Single PCI Card

Based on Pinnacle's EMMY award-winning special effects technology, GeniePlus is a complete desktop post-production system that includes a 3-D DVE/switcher, advanced character generator, fast still-store and a dynamic paint system – at a price you can afford. Equipped with an incredible array of features on a single PCI card, GeniePlus lets you create your own stunning effects, including page turns, water ripples and spheres with uncompromised 4:2:2 digital quality. The full-function 3-D DVE provides ultra-smooth motion and no breakup (pixelation) when pictures are sized or rotated. You'll be able to create exciting warp effects with lighting, trails, shadows and borders faster and easier than ever before.

miro DC-30 *plus*
PCI Capture Card for Windows 95/NT

The DC30 *plus* lets you capture, edit, add special effects or titles to your video, mix CD-quality audio, and then output the final cut to video tape. The DC-30 *plus* also offers fast plug and play installation and easy to use software so you'll be producing studio quality video in minutes. It even analyzes your system and automatically configures itself to provide the optimum video quality.

- The DC-30 is a PCI Bus mastering card that delivers a 6MB per second sustained video data transfer rate for high quality video capture. PCI Bus mastering ensures CPU bottlenecks don't impede the performance of the PCI bus, thereby limiting the reachable video transfer data rate.
- 2.4:1 compression ratio (adjustable up to 32:1). A lower compression ratio means a better final video image quality. Compression ratios under 4:1 are considered to be "broadcast quality."
- Real-time video overlay displays the video in real-time on the computer monitor during capture and video editing process eliminating the need for an external video monitor.
- Full NTSC, PAL, SECAM, PAL M for worldwide compatibility.
- Audio and video capture is synchronized to achieve perfect lip-sync. (Capture from 8-bit mono 11kHz to 16-bit stereo 44.1kHz.
- Hardware acceleration of Adobe Premiere provides almost instant display of video "thumbnails" in the construction window (under one second). Acceleration also reduces the time to create "previews" and final video clip with "make movie".
- Bundled with Adobe Premiere 4.2 full version, Photoshop 3.05 LE and Asymetrix 3D/FX animation software.

DC-30 *plus* for Windows **799.00**

Miro DC-30 *plus* Turnkey System:
- 220-watt midtower case • Pentium 200 MHz MMX processor • PCI motherboard with 512K cache
- Diamond Stealth 3D 3000 4MB DRAM PCI display card • 64MB of RAM • Quantum 3.2 GB IDE system drive
- Seagate (Barracuda) 9GB SCSI-2 FAST/Ultra-wide hard drive • Adaptec AHA-2940UW FAST/Wide SCSI-2 controller
- 3.5" floppy drive • Teac CD-532E 32X EIDE internal CD-ROM drive • Altec-Lansing ACS-43 2-piece speaker system
- Focus 2001A keyboard • Microsoft MS mouse • Viewsonic G771 17-inch 1280 X 1024 SVGA monitor
- Windows 95 • Miro DC-30*plus* video/audio capture card
- Adobe Premiere 4.2 (full version) editing software, Adobe Photoshop 3.05 LE imaging software and Assymetrix 3-D F/X animation software **$3695.00**

DV-300 IEEE 1394 Digital Video Capture Card

A digital video capture, editing, and playback solution for Windows 95/NT and MacOS , the DV-300 is built around an intuitive software application that offers frame-accurate DV camera control, uncompromised image quality, and the ability to intelligently search digital videotapes for individual scenes. Additionally, the DV300 differentiates itself by providing a built-in SCSI port for connection to high speed drives.

DV-300 Hardware:
- PCI board with bus mastering interface
- Includes 1394 cable
- One internal and two external DV connections
- Bundled with Adobe Premiere 4.2 LE
- Convert your DV data for editing with other miroVIDEO editing adapters (e.g. miroMOTION DC30, DC30 plus.)

DV-300 DVTools Software:
DVTools automatically scans the DV tape and finds scene in and out points. The Camera Controller allows for previewing before down loading any data. Scene locations with timecode are organized in the drag-and-drop Capture Gallery. Scenes can be trimmed so only the video you want is captured, saving you valuable hard drive space.
Once you have arranged the scenes to edit, DVTools will automatically cue the camera and capture them. Segments can be arranged for a cuts only production, or loaded into Premiere for effects and transitions. miroINSTANT DV, a plug-in for Premiere renders only effects and transitions, saving up to 50% of your hard drive space by not re-rendering the video clips. The video and the effect segments are then stored as individual video files. When production is finished, output to the camera through the IEEE1394 link. From Premiere, miroINSTANT DV automatically prints files back to tape in one pass, overcoming the 2 GB movie size limitation.

QUICK DIAL 731

FAST DV Master

Unlike software-based DV systems that can be as slow as six times real-time, DV Master incorporates Sony's DVBK-1 DV hardware CoDec to guarantee lossless transmission at top speed. With just one cable you can transfer video, sound and machine control signals in real-time. Also allows the display of live video during "capture", as well as at any time during the editing process. You can scrub in or trim the timeline, and then preview it in real-time at full-screen, full-motion on your video or computer monitor.
Another advantage of having the Sony DVBK-1 on the board, is that it allows the DV Master to act as a real-time video transcoder. Using the supplied break-out box, you can simultaneously convert analog composite, S-Video and component into digital and vice versa. This is ideal for archiving analog footage onto digital as well as for mixing analog and digital footage when editing. It also allows you to transfer edited digital footage directly to S-VHS or Betacam SP without having to first go back to the camera.

Bundled Software:
Includes Sonic Foundry Sound Forge audio editing software, and a choice of editing software: Ulead MediaStudio Pro 5.0, full version of Adobe Premier 4.2 or special version of in:sync Speed Razor MACH 4.

canopus DVRex-M1
The Complete DV Digital Video Editing System

The DVRex-M1 is a hardware and software bundle that offers a complete solution for capture, output and editing of DV (Digital Video) signals. Equipped with Sony's DVBK-1 hardware DV codec, a breakout box and ULead's Media Studio Pro 5.0, the DVRex-M1 provides real-time capture and output of DV signals from your camera or VCR via the IEEE1394 port, or converts any analog video and audio to DV. The system also includes Rex Edit software so you can control your DV camera or deck, batch capture video and audio, add new audio tracks and scrub in real-time. DV editing has never been so fast, easy and flexible!

Hardware Features:
- High quality, scalable video windows displays real-time, full-screen video during capture, editing and output.
- During analog capture and output, video characteristics like brightness, contrast, saturation etc. can be manually set.
- When incorporating effects, an optimized hardwared DV codec cuts rendering time up to 25%.
- Unique DV breakout box can be used either externally or internal in a 5-1/4" drive bay. The box features composite and S-Video input/output, DV input/output and analog stereo input/output. With the optional M2 module it can also output component video signals and input/output digital audio signals (RCA and optical).

Rex Edit Software Features

Manual and Batch Capture:
- Capture up to 20 minutes (4GB) into one AVI file
- Seamlessly capture long DV segments in one pass (over 20 minutes)
- Capture audio from single of multiple DV channels if desired
- Frame accurate camera control when defining a batch list of video clips
- When batch capturing, camera automatically seeks to clips
- Batch clips can be stored in one or multiple AVI files

Editing:
- Easy to use drag-and-drop interface with audio and video timeline. Manually scrub through the timeline using a Microsoft IntelliMouse
- Real-time video insert and audio scrubbing
- Video can be output directly from the timeline with seamless playback
- Works together with ULead's MediaStudio Pro 5.0 (bundled with DVRex-M1) for effects and titling

Multi-Channel Audio Input and Output with Mixing:
- Capture and output native DV multi-channel audio
- Audio is perfectly synced with video during production and output
- Overcomes AVI single channel limitations with real-time audio mixing
- Multi-channel audio requires no rendering for real-time adjustment and output

TRUEVISION / AVID
TARGA 1000/MCXpress
Professional Video Production Workstation

Incorporating the award-winning TARGA 1000 video card and Avid MCXpress NT non-linear editing software, this fully-configured workstation meets the needs of production professionals, corporate communicators, educators and Internet authors.

TARGA 1000 Features:
The TARGA 1000 delivers high processing speed for video and audio effects, titling and compositing. Capture, edit and playback full-motion, full-resolution 60 fields per second digital video with fully synchronized CD-quality audio.
- Compression can be adjusted on the fly to optimize for image quality and/or minimum storage space. Has composite and S-video inputs/outputs. Also available with component input/output (TARGA 1000 PRO).
- Genlock using separate sync input for working in professional video suites
- Audio is digitized at 44.1KHz or 48KHz sampling rates, for professional quality stereo sound. Delivers perfectly synchronized audio and video.

MCXpress Features:
The ideal tool for video and multimedia producers who require predictable project throughput and high-quality results when creating video and digital media for training, promotional/marketing material, local television and cable commercials, CD-ROM and Internet/intranet distribution. Based on Avid's industry-leading technology, it combines a robust editing functionality with a streamlined interface. Offers integration with third-party Windows applications, professional editing features, powerful media management, title tool and a plug-in effects architecture. It also features multiple output options including so you save time and money by reusing media assets across a range of video and multimedia projects.

TARGA 1000/MCXpress Turnkey Systems:

- 300-watt, 6-Bay Full Tower ATX Chassis
- Pentium ATX Motherboard with 512K Cache
- Pentium II- 300 MHz Processor
- Matrox Millenium II AGP 4MB WRAM Display Card
- 64MB 10ns 168-Pin (DIMM) S-DRAM
- Quantum Fireball 6.4GB IDE System Drive
- Seagate Barracuda External 9.1GB SCSI-3 Ultra Wide Capture Drive
- Adaptec AHA-2940UW Ultra Wide SCSI-3 Controller Card
- Teac CD-532e 32X EIDE Internal CD-ROM Drive • 3.5" Foppy Drive
- Altec-Lansing ACS-48 3-Piece Deluxe Speaker System
- Viewsonic G771 17-inch (1280 x 1024) Monitor (0.27mm dot pitch)
- Focus 2001A Keyboard • Microsoft MS Mouse
- Windows NT 4.0 Operating System Software
- Avid MCXpress for Windows NT
- Truevision TARGA 1000 or 1000 Pro Video Capture Card

With TARGA 1000 ..... **$7495.00**
With TARGA 1000 Pro (component input/output) **$7995.00**

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Amiga Software

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Address it 1.5	(#53048)	26
Blitz Basic 2.1	(#51033)	65
Cinema 4D	(#51079)	239
Control Tower	(#53011)	139
Co Pilot Audio	(#54000)	89
Co Pilot Video	(#55003)	89
Cross Mac	(#50000)	69
Cross DOS 6.0 Pro	(#50001)	39
Cybergraphix	(#53004)	49
Dem-Rom	(#51080)	29
Deluxe Paint 4		119
Diavolo B-Up Standard	(#53049)	69
Diavolo Backup Pro	(#53050)	98
Digital Universe	(#56001)	124
Directory Opus Magellen	(#53013)	89
Easy Ledgers II	(#51081)	145
En Print 2.1	(#53024)	29
Diskmagic	(#53033)	39
Gamesmith	(#56002)	68
Gigamem 3.12	(#53051)	59
GP FAX Generic	(#53030)	47
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Lightwave Software

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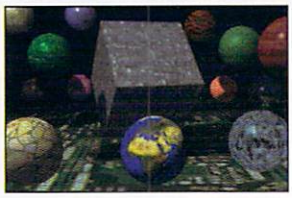

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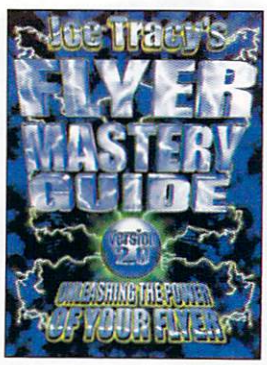

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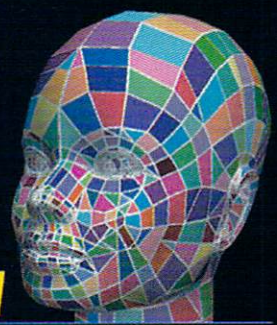

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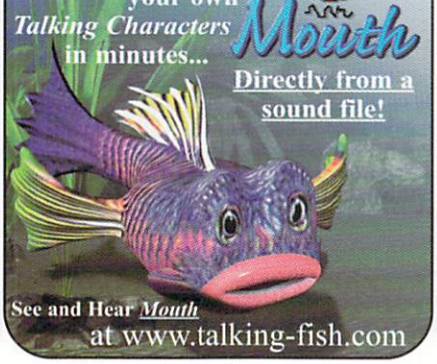

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My biggest hobby is raving. To me, that boils down to everything associated with Techno music (you can keep that lame Electronica term, thank you). The rave scene definitely has its own underground subculture, but the focus is always the music. Everything comes back to it. A love of that thumping bass and psychedelic melody is what brings these people together, providing a common ground for folks from all walks of life.

At the center of the rave universe lies the DJ. Just as rock 'n' rollers have their guitar-slinging heroes, techno fans dream of pushing the wax on a pair of Technics and driving the dance floor crazy. If the DJ sucks, the party sucks. It's that simple.

Over the years, I've really become a techno fanatic; I live, eat, and breathe it. It's all I listen to anymore and it seems like every dime I make goes toward buying more (aside from the odd cheeseburger—see last month's column for details). As anyone reading this magazine can understand, when you get that involved in a hobby, eventually you're gripped with the desire to become a part of it. Therefore, it was only natural that, sooner or later, I would get this wild idea in my head that I could transform myself into "DJ Mojo." It also didn't hurt that my accountant suggested it would be a great way to write off all those CDs.

So last year I bought a pair of DJ CD players and a mixer to see if I would be any good at it. The biggest difference between being a DJ and becoming a guitar player in a band is that DJ'ing is a singular task. There is no teamwork involved. It means that success can wildly feed your ego, while failure gives you no one to blame but yourself. Hence, there is a strong desire within the man behind the decks to keep that crowd happy.

TRAINSPOTTING

When I first started out, I had no idea what I was doing. I just grabbed a bunch of my favorite songs and started working on a mix tape. The first step in this occupation is to practice by making lots of tapes, sharing them with your friends, and seeing if they think you suck. It was fun to make that first tape and I distributed dozens of copies among my pals. Everyone seemed to like it and I was very encouraged to get moving on the next one.

While I was practicing, I bought lots of DJ magazines and sought the wisdom of the pros I ran into; I studied other people's mix-tapes and I paid very, very close attention to the DJs at raves. I wanted to be good at it, and to do that I had to make sure I could make that crowd happy. Then something weird happened. My tapes were getting harder and harder to make. I was having an increasingly difficult time picking which tracks to use and I became obsessed with playing my "works-in-progress" for friends. If someone didn't like a song, it was out. Their opinions guided me. It got to the point where I was just never happy with my results. That's when I realized what the problem was: I wasn't trying to make myself happy anymore!

All I was after was a product that would make everyone else happy. I have come to understand that this fate befalls many a would-be superstar DJ. They begin to focus exclusively on what the crowd wants to hear; they start to look at music charts for what records to buy; they listen to what popular DJs spin; and they slowly homogenize themselves into faceless drones—Borgs with headphones. In the end, the ones who trust their instincts end up being the true innovators and trailblazers.

When Ron Thornton created the visual effects for "Babylon 5," he established a unique style that many people didn't like because it was so different. Did he change it to keep the crowds happy? Hell no! He stuck to his guns and now every damn space show looks like "B5."

Yes, there often has to be compromise. Sometimes you even end up losing the battle because there will always be bosses and clients and producers (as well as crowds) who need to be kept happy. It's a tightrope that can be a real bitch to walk and often you find yourself trying to second-guess what everyone else wants. Soon you're anticipating their likes and dislikes and trying to adapt your work to follow suit and then, before you know it, ZAP! You're a drone.

In the end, the only person you can absolutely make 100 percent happy is you. Believe in yourself and trust that your abilities will be admired and respected because you are talented. You're in this business (or want to be) for a reason and it ain't to make everyone else happy—it's to make money! And so far it seems to me that the people who make the most money are actually the ones who keep themselves the happiest.

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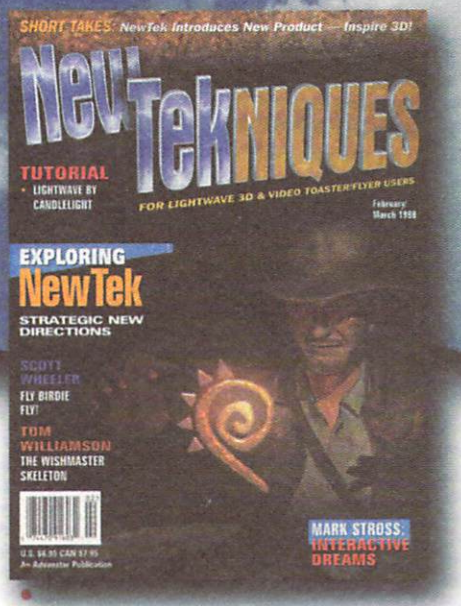

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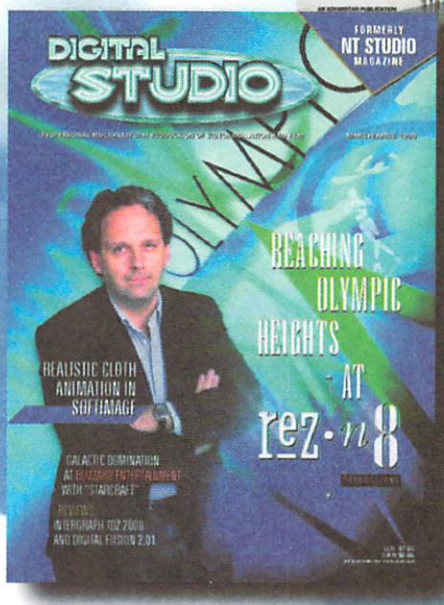

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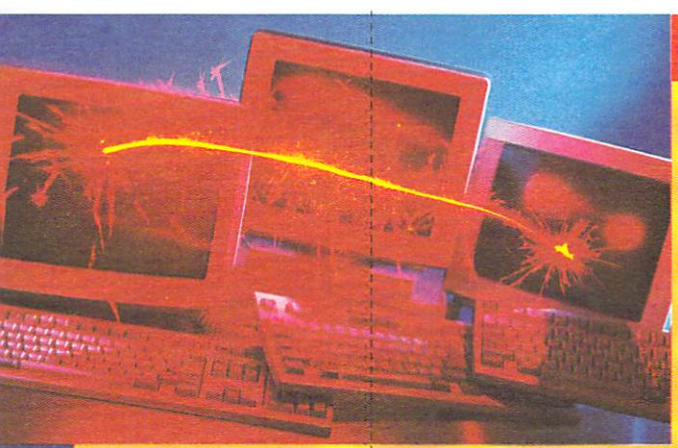

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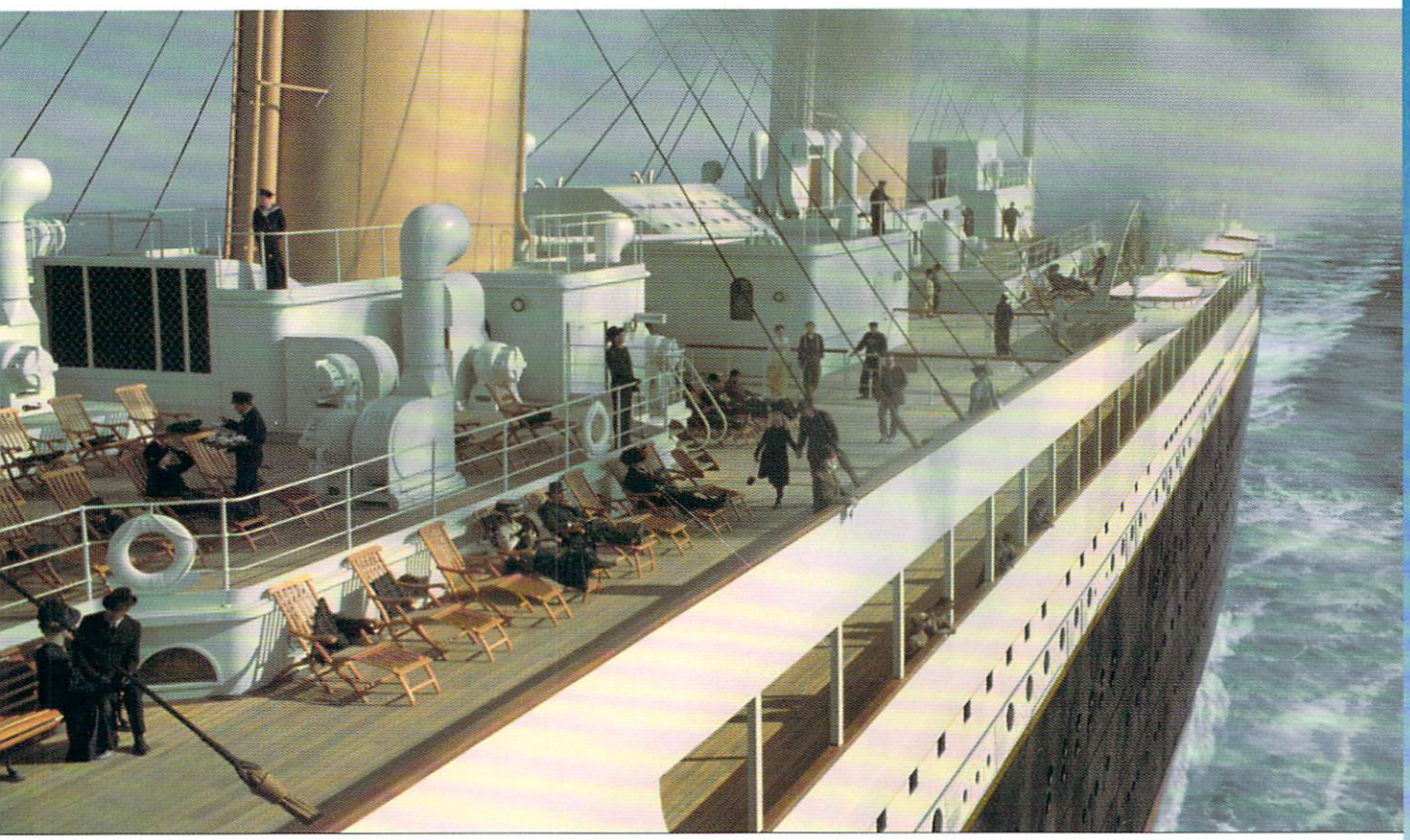

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"Titanic was big in every way. A big film. A big challenge. And, in the end, a big reward. But the trick with the animation was to achieve the look and result James Cameron was going for.

As huge as the Titanic set was, we still had to add the hull and extensions to the scenes. And when the treasure seekers tell Old Rose what happened to the ship that night, it's computer animation that visualizes the story.

We chose LightWave 3D to bring it to life. Its speed, workflow and how easy it is to learn and use are terrific. That's important, because our artists are so exacting about quality, we tinker endlessly on details other people may never even see. But doing that means constant review and feedback. So, the faster we can go from idea to visual in film or commercial work, the more time we have to review and get exactly what we're after. LightWave 3D gives us that time.

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